The following Government Departments and Scientific and Industrial Organisations were represented upon the Sectional Committee, Sub-Committee and Panels entrusted with the preparation of this Glossary :—

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General Post Office.
Home Office.
India Office.
War Office.
Wireless Board.
Electricity Commissioners.
National Physical Laboratory.
London County Council.
Crown Agents for the Colonies.
Institution of Electrical Engineers.
Institution of Automobile Engineers.
Institution of Naval Architects.
Faraday Society.
Association of Consulting Engineers.
British Electrical and Allied Industries Research Association.
British Electrical and Allied Manufacturers' Association.
Cable Makers' Association.
Electric Lamp Manufacturers' Association.
Incorporated Association of Electric Power Companies.
Incorporated Municipal Electrical Association.
Municipal Tramways Association.
National Electrical Contractors' Association.
Provincial Electric Supply Committee of the United Kingdom.
Tramways and Light Railways Association.

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NOTE.

In order to keep abreast of progress in the Industries concerned, the British Standard Publications are subjected to periodical review.

Suggestions for improvements, addressed to the Secretary, British Engineering Standards Association, 28, Victoria Street, London, S.W.1, will be welcomed at all times. They will be recorded, and in due course brought to the notice of the Committees charged with the revision of the Publications to which they refer.

* *The Sectional Electrical Committee is the British National Committee of the International Electrotechnical Commission.*

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BRITISH STANDARD

GLOSSARY

OF

TERMS USED IN

ELECTRICAL ENGINEERING.

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BRITISH STANDARD

GLOSSARY

OF TERMS USED IN

ELECTRICAL ENGINEERING.

INTRODUCTION.

Objects.

1. In preparing this Glossary the objects in view have been:—

(*a*) to standardise and co-ordinate the electrotechnical terms used in the British Empire;

(*b*) to provide a basis for the British portion of an International Vocabulary, in course of preparation by the International Electrotechnical Commission.

Scope.

2. The Glossary is intended to cover the technical terms ordinarily used in Electrical Science and in its application to the Electrical Industry.

Terms and Definitions.

3. An endeavour has been made to render the definitions as general as possible, so as not to restrict their application unduly.

No attempt is made to render each definition complete in itself, as this would have made the Glossary too complex and lengthy, but each specific definition may depend on a generic definition, *e.g.*,

MASTER CONTROLLER: A controller which, etc.

The definitions conform to current usage except when such usage appears to be erroneous or misleading, in which case attention is drawn to the fact.

While current practice has been followed in the majority of cases, it is considered desirable to standardise the use of terminations, as follows:—

.....**ION** to indicate the operation by which certain effects are produced, *e.g.*, **INDUCTION, EXCITATION.**

.....**ANCE** to indicate the property of a body by virtue of which certain effects are produced, *e.g.*, **INDUCTANCE, RESISTANCE.**

In practice this termination is often used for the *measure* of such property.

.....**IVITY** to indicate for a given substance the measure of some particular property under specified conditions, *e.g.*, **CONDUCTIVITY, RESISTIVITY.**

Arrangement.

4. It was originally proposed that the definitions should be arranged alphabetically, but it was found that with this method cognate terms were so far removed from one another that comparison was difficult. The method also had the disadvantage that specialised terms and general terms were intermixed.

The terms are grouped, therefore, according to the particular branch of the Electrical Industry in which they are used. Those common to two or more branches are in most cases given in Section 1 (General). In a few cases, however, where a term is common to two or more sections, the definition is given in each section.

Numbering.

5. Each individual definition is given a 4- or 5-digit number, the first one or two digits of which (in the thousands place) represent the section. The section number with the following digit (in the hundreds place) represents the sub-section, while the last two digits represent the position of the definition in the sub-section, *e.g.*, Definition No. 1233 is the 33rd definition of Sub-section 12, which is in Section 1.

Index.

6. The alphabetical index has been drawn up on the following lines:—

(*a*) The numbers given refer to the number of the definition.

(*b*) The preferred term and any synonyms are included.

(*c*) Where a term is repeated in two sections with the same definition, both numbers are quoted, *e.g.* :—

INDUCTION COIL. 1837 and 2415

(*d*) Where a term occurs in two places in a different sense, the specific application of the term is given after it, *e.g.*,

CHARGE, Of a condenser 1810

CHARGE, Of an accumulator 6219

Different Meanings.

7. Where a term is used with more than one meaning, separate definitions are given under sub-headings, (a), (b), (c), etc., and if any such meaning is confined to a certain field of use, this is specified after the sub-heading letter, *e.g.* :—

INHERENT REGULATION (a) Of an A.C. generator.
(b) Of a D.C. generator.
(c) Of a transformer.

Synonyms and Preferred Terms.

8. Where two or more synonyms are in use, the term which is considered the most explicit or the most convenient is given first, with the idea that such preferred term will become standard. Any synonyms are given below the preferred term in less prominent type, *e.g.* :—

INDUCTION COIL.
SPARK COIL.
RUHMKORFF COIL.

Deprecated Terms.

9. Where a term is considered erroneous or ambiguous, it is marked "*deprecated.*" Similarly, if a certain meaning which is considered confusing or ambiguous has in the past sometimes been assigned to a term, such meaning is defined, but is marked "*deprecated.*"

Abbreviations.

10. Abbreviations in common use are given in italics below the term, *e.g.* :—

POLE PIECE.
Pole.

Where an abbreviation appears to be in more common use than the original term, the abbreviation is given first, *e.g.* :—

BUS-BAR
Ab'n. for Omnibus Bar.

Spelling.

11. It has been considered desirable to standardise as far as possible the termination **"OR"** as designating a piece of apparatus or a machine for accomplishing a certain purpose, leaving the termination **"ER"** to be applied to the person who carries out an operation.

As examples of terms commonly spelt with the termination **"OR"** the following may be cited:—

Accumulator.	Detector.	Oscillator.
Alternator.	Generator.	Reactor.
Collector.	Governor.	Regulator.
Commutator.	Indicator.	Resistor.
Compensator.	Inductor.	Rotor.
Conductor.	Insulator.	Separator.
Contactor.	Motor.	Stator.

The following terms of comparatively recent origin have been spelt in the Glossary with the termination **"OR"** :—

Arrestor.	Selector.
Convertor.	Startor.
Divertor.	Voltadjustor.
Neutralator.	

The following terms have been spelt in the Glossary with the termination **"ER"** in deference to long-established usage :—

Balancer.	Feeder.	Milker.
Booster.	Fender.	Phase Advancer.
Breaker.	Hanger.	Recorder.
Condenser.	Jumper.	Transformer.
Controller.	Keeper.	Voltmeter, etc.
Damper.	Limiter.	Wiper.
Exciter.		

SECTION I.

GENERAL.

Sub-Section 11. Elemental Terms.
12. Fundamental Electrostatic Terms.
13. Fundamental Magnetic Terms.
14. Derived Terms.
15. Units.
16/17. Technological Terms.
18. Apparatus.
19. Mechanical and General Terms.

SUB-SECTION 11. ELEMENTAL TERMS.

No.	TERM.	DEFINITION.
1101	**ATOM.**	One of the units from which matter is built up.
1102	**ELECTRON.**	The fundamental unit of negative electricity. Its charge, as determined by Millikan, is $4{\cdot}774 \times 10^{-10}$ negative electrostatic units and its mass $9{\cdot}00 \times 10^{-28}$ grammes at low velocities.
1103	**PROTON.**	The fundamental unit of positive electricity. Its charge is $4{\cdot}774 \times 10^{-10}$ positive electrostatic units and its mass, as determined by Rutherford, is practically identical with that of the neutral atom of hydrogen *i.e.*, $1{\cdot}66 \times 10^{-24}$ grammes, or 1·007 on the oxygen scale.
1104	**RUTHERFORD ATOM.**	The atom, as conceived by Rutherford, consisting of a central dense nucleus containing a positive charge surrounded, at distances relatively great compared with its diameter, by planetary electrons. The positive charge on the nucleus of an atom determines the atomic number of the element to which the atom belongs.

No.	TERM.	DEFINITION.
1105	**ION.**	A molecular or atomic aggregate which carries an excess of either positive or negative electrical charge.
1106	**ANION.**	The ion which carries the negative charge against the direction of the current and delivers it at the anode.
1107	**CATHION.** CATION. KATION.	The ion which carries the positive charge in the direction of the current and delivers it at the cathode.
1108	**IONISATION.**	The formation of ions.
1109	**POSITIVE.**	A qualifying term applied to one of two points between which a difference of potential exists, to distinguish that one which corresponds, as far as the tendency to set up a current in an external circuit is concerned, to the copper plate of a Daniel cell.
1110	**NEGATIVE.**	A qualifying term applied to one of two points between which a difference of potential exists, to distinguish that one which corresponds, as far as the tendency to set up a current in an external circuit is concerned, to the zinc plate of a Daniel cell.
1111	**POLARITY.**	(*a*) Magnetic. That quality of a body by virtue of which certain characteristic properties are manifested at certain points. These points are known as **POLES.** (*b*) Electric. A term applied to electrical machinery or apparatus when it is desired to indicate which terminal is positive and which is negative.
1112	**ELECTROCHEMICAL SERIES.**	A classification of the elements in such an order that each is electro-negative to any of those preceding it, when in contact therewith, and electro-positive to any of those succeeding it.
1113	**ISOTOPES.**	Bodies which have identical chemical properties, but differ in atomic weight.

SUB-SECTION 12. FUNDAMENTAL ELECTROSTATIC TERMS.

No.	TERM.	DEFINITION.
1201	**CHARGE OF ELECTRICITY.**	An excess or deficiency of electrons on a body causing electric effects in the neighbourhood.
1202	**UNIT ELECTROSTATIC CHARGE.**	That charge (positive or negative) which, if situated in a vacuum at a distance of one centimetre from an equal charge of the same sign, would give rise to a mechanical force of repulsion of one dyne.
1203	**ELECTROSTATIC FIELD.** ELECTRIC FIELD.	The portion of space in the neighbourhood of a charged body throughout which the forces due to the charge are sensible.
1204	**ELECTRIC FORCE.** ELECTROSTATIC FIELD STRENGTH. ELECTRIC FIELD STRENGTH. INTENSITY OF ELECTRIC FIELD.	At any point. The force in dynes which would be experienced by a unit charge of positive electricity concentrated at that point, it being assumed that the presence of the charge does not disturb the field.
1205	**ELECTROSTATIC LINE OF FORCE.**	A line drawn in an electrostatic field such that its direction at every point gives the direction of the mechanical force which would be exerted on a small charge if placed at that point.
1206	**ELECTROSTATIC TUBE OF FORCE.** TUBE OF ELECTRIC FORCE.	The space included within electrostatic lines of force drawn through adjacent points on the boundary of a given area in an electrostatic field.
1207	**UNIT ELECTROSTATIC TUBE OF FORCE.** UNIT TUBE OF ELECTRIC FORCE. FARADAY TUBE.	An electrostatic tube of force having a cross-sectional area, at right angles to the lines of force and at a point where the electric force is unity, of 4π square centimetres. It follows from the "inverse square" law that the number of unit tubes which leave a charge is equal to the charge, and that the product of the electric force and the area of a tube at right angles to the lines of force is constant throughout the length of the tube.

No.	TERM.	DEFINITION.
1208	**ELECTROSTATIC FLUX.**	The number of unit electrostatic tubes of force traversing a given surface. The total flux over a surface enclosing a charge is equal to the charge.
1209	**UNIT ELECTROSTATIC FLUX.**	The electrostatic flux in a unit electrostatic tube of force.
1210	**ELECTROSTATIC FLUX DENSITY.**	The electrostatic flux per unit area, normal to the direction of the flux. Symbol: D.
1211	**ELECTROSTATIC INDUCTION.**	The phenomena accompanying the introduction of a conducting body into an electrostatic field which give rise to the appearance of charges on different parts of the body.
1212	**PERMITTIVITY.** SPECIFIC INDUCTIVE CAPACITY. INDUCTIVE CAPACITY. INDUCTIVITY. DIELECTRIC CONSTANT. DIELECTRIC COEFFICIENT.	Of a dielectric medium. The ratio of the capacity between two conductors when surrounded by the medium to the capacity in a perfect vacuum. Symbol: ϵ
1213	**CAPACITANCE.** CAPACITY.	The property of a body, by virtue of which a difference of potential exists between it and surrounding bodies, when a quantity of electricity is imparted to it. The capacitance of a body is measured by the quantity of electricity that must be imparted to it in order to raise its potential from zero to unity, any other conductors in the field being at zero potential. Symbol: C.

SUB-SECTION 13. FUNDAMENTAL MAGNETIC TERMS.

No.	TERM.	DEFINITION.
1301	**CHARGE OF MAGNETISM.**	A hypothetical distribution of magnetism on the surface of a magnet, to which distribution magnetic properties are assigned analogous to the electric properties of a charge of electricity and by means of which it is possible to explain the magnetic effects produced in the neighbourhood of a magnet.
1302	**UNIT MAGNETIC POLE.**	That charge of magnetism (positive or negative) which, if situated in a vacuum at a distance of one centimetre from an equal charge of the same sign, would give rise to a mechanical force of repulsion of one dyne.
1303	**MAGNETIC FIELD.**	The portion of space, in the neighbourhood of a magnetic body or of a conductor carrying an electric current, throughout which the forces due to the body or the current are sensible.
1304	**MAGNETIC LINE OF FORCE.**	A line drawn in a magnetic field such that its direction at every point gives the direction of the force exerted on a magnetic pole placed at that point; or, alternatively, gives the direction of the axis of a small symmetrically magnetised magnet freely suspended at that point.
1305	**MAGNETIC TUBE OF FORCE.** TUBE OF MAGNETIC FORCE.	The space included within magnetic lines of force drawn through adjacent points on the boundary of a given area in a magnetic field.
1306	**UNIT MAGNETIC TUBE OF FORCE.**	A magnetic tube of force having a cross-sectional area, at right angles to the lines of force and at a point where the magnetic force is unity, of one square centimetre. It follows from the "inverse square" law that the product of the magnetic field strength and the cross-sectional area of a section of tube, everywhere at right angles to the lines of force, is a constant over the whole length of the tube; and that the magnetic force at any point is measured by the number of unit tubes per square centimetre, taken at right angles to the lines of force.

No.	TERM.	DEFINITION.
1307	**MAGNETIC FLUX.**	The number of unit magnetic tubes of force traversing a given surface. Symbol : Φ.
1308	**LINE OF MAGNETIC FLUX.** UNIT MAGNETIC FLUX. MAXWELL.	The magnetic flux within a unit magnetic tube of force.
1309	**MAGNETIC FLUX DENSITY.**	The magnetic flux per unit area, normal to the direction of the flux. Unit area should be taken as one square centimetre unless otherwise stated. Symbol : B.
1310	**MAGNETIC CIRCUIT.**	The complete closed path followed by any group of lines of magnetic flux.
1311	**MAGNETIC LEAKAGE.**	That part of the magnetic flux which follows a path in which it is ineffective for the purpose desired.
1312	**MAGNETIC POTENTIAL DIFFERENCE.**	A magnetic condition existing between two points and tending to cause a charge of magnetism to move from one point to the other. It is measured by the work done in moving a hypothetical unit pole from the one point to the other.
1313	**MAGNETIC FORCE.** STRENGTH OF MAGNETIC FIELD. INTENSITY OF MAGNETIC FIELD.	The force exerted on a unit magnetic pole situated at the point considered.
1314	**MAGNETOMOTIVE FORCE.**	The total of the magnetic potential differences along the whole length of a magnetic line of force.
1315	**MAGNETISING FORCE.**	The magnetomotive force per centimetre, measured along the lines of force, in the case of a magnetic flux set up by a current of electricity flowing in a magnetising coil. Symbol : H.
1316	**RELUCTANCE.**	Of a magnetic circuit. The ratio of the magnetomotive force acting in the circuit to the resulting magnetic force. Symbol : S.
1317	**PERMEANCE.**	The reciprocal of the reluctance.

No.	TERM.	DEFINITION.
1318	**PERMEABILITY.**	Of a material or medium. The ratio of the magnetic flux produced by a given magnetic force in the material or medium, to the magnetic flux which would be produced by the same magnetic force in a perfect vacuum. Symbol μ.
1319	**RELUCTIVITY.** SPECIFIC RELUCTANCE.	The reciprocal of the permeability.
1320	**MAGNETIC INDUCTION.**	(*a*) The phenomena which accompany the introduction of a body, having a permeability differing from that of a surrounding medium, into a magnetic field and which give rise to the appearance of poles on different parts of the body. (*b*) The total magnetic flux produced by a source of magnetomotive force.
1321	**EXCITATION.**	(*a*) The production of magnetic flux in an electro-magnet by means of a current. (*b*) The magnetising force producing the magnetic flux in an electro-magnet.
1322	**ELECTRO-MAGNETIC INDUCTION.**	The production of an E.M.F. in a circuit by the change of magnetic flux which accompanies any variation in the current flowing in the same circuit (**SELF INDUCTION**) or in another circuit (**MUTUAL INDUCTION**). The E.M.F. so produced is known as an **INDUCED E.M.F.** and any current that may result therefrom is known as an **INDUCED CURRENT.**
1323	**LINKAGE.**	Of magnetic induction or magnetic flux. A measure of the product of the number of lines of magnetic flux and the number of turns of a coil or circuit through which they pass. The unit is one line of magnetic flux passing through one turn of the coil or circuit.
1324	**INDUCTANCE.**	The property of a circuit by virtue o which electro-magnetic induction occurs. Inductance may be self inductance or mutual inductance or a combination of both.

No.	TERM.	DEFINITION.
1325	**SELF INDUCTANCE.** COEFFICIENT OF SELF INDUCTION. SELF INDUCTION.	The property of a circuit by virtue of which self induction occurs. It is measured by the sum of the number of linkages of the lines of magnetic flux with the turns of the circuit, due to unit current flowing therein. Symbol *L*.
1326	**MUTUAL INDUCTANCE.** COEFFICIENT OF MUTUAL INDUCTION. MUTUAL INDUCTION.	The property of a circuit by virtue of which mutual induction occurs. It is measured by the sum of the number of linkages of the lines of magnetic flux due to unit current flowing in one circuit (the primary) with the turns of another circuit (the secondary). Symbol: *M*.
1327	**INDUCTIVE.**	A qualifying term applied to a circuit or winding to indicate that its self-inductance is for the purpose in view appreciable compared with its resistance.
1328	**NON-INDUCTIVE.**	A qualifying term applied to a circuit or winding to indicate that its self-inductance is for the purpose in view negligible compared with its resistance.
1329	**DIAMAGNETIC.**	A term applied to a substance of which the permeability is less than unity.
1330	**PARAMAGNETIC.**	A term applied to a substance of which the permeability is greater than unity but is approximately independent of the magnetic flux density.
1331	**FERRO-MAGNETIC.**	A term applied to a substance of which the permeability is greater than unity but varies with the magnetic flux density, as in the case of iron.
1332	**MAGNETISE, TO**	To give a body the properties of a magnet.
1333	**MAGNETISATION.**	The operation or result of magnetising a body.

No.	TERM.	DEFINITION.
1334	**MAGNETIC MOMENT.** MOMENT OF A MAGNET.	The product of the strength of either pole of a magnet and the distance between the poles.
1335	**INTENSITY OF MAGNETISATION.**	The magnetic moment per cubic centimetre. Symbol : J.
1336	**SUSCEPTIBILITY.** MAGNETISABILITY.	The number obtained by dividing the intensity of magnetisation by the magnetic force producing it. Symbol : κ.
1337	**REMANENCE.**	The residual flux density in a substance after the magnetomotive force has been removed.
1338	**MAGNETIC HYSTERESIS.**	The lagging of the flux density, in magnetic materials, behind the magnetomotive force producing it, so that a dissipation of energy occurs, which is usually known as the hysteresis loss.
1339	**MAGNETIC HYSTERESIS LOOP.** B/H LOOP.	The closed figure formed by plotting the values of the flux density per square centimetre (B) in a magnetic material against the magnetising force (H) when the latter is taken through a complete cycle. The hysteresis loss is proportional to the area of this loop.
1340	**RESIDUAL MAGNETISM.**	The magnetism remaining in a substance after the magnetomotive force has been removed.
1341	**COERCIVE FORCE.**	The magnetomotive force required to annul the residual magnetism of a substance.
1342	**ROTATING MAGNETIC FIELD.**	A region of space wherein exist magnetomotive forces the directions of which rotate. When the resulting rotating flux is constant in magnitude and rotates with a uniform angular velocity in one plane, the field is known as a **PURE ROTATING MAGNETIC FIELD.**

SUB-SECTION 14. DERIVED TERMS.

No	TERM.	DEFINITION.
1401	**POTENTIAL DIFFERENCE.** DIFFERENCE OF POTENTIAL.	Electrical, between two points. An electrical condition existing between two points, whether separated by a conductor or insulator, and tending to cause a movement of electricity from one point to the other. It is measured by the work done in moving a unit charge of electricity from one point to the other. Symbol: *V*.
1402	**POTENTIAL.**	Electrical, at a point. The potential difference between that point and surrounding bodies, all of which are assumed to be at an infinite distance therefrom.
1403	**EQUIPOTENTIAL SURFACE.**	A surface throughout which no potential difference exists.
1404	**POTENTIAL GRADIENT.** ELECTRIC INTENSITY.	At a point. The potential difference per unit length measured in the direction of the resultant force at that point.
1405	**ELECTROMOTIVE FORCE.** *E.M.F*	An electrical condition tending to cause a movement of electricity in a circuit. It is measured by the sum of the potential differences from point to point round the circuit.
1406	**VOLTAGE.**	Electromotive force or potential difference expressed in volts.
1407	**ELECTRIC CURRENT.** *Current.*	The flow of electricity round a circuit. It is measured by the quantity of electricity which flows past any cross-section per second. Symbol: *I*. Unit: the Ampere.
1408	**DIRECT CURRENT.** *D.C.*	An electric current flowing in one direction only, and sensibly free from pulsation.
1409	**UNIDIRECTIONAL CURRENT.**	An electric current flowing in one direction only: it may be constant in magnitude or pulsating.
1410	**PULSATING CURRENT.**	An electric current which undergoes regular recurring variations in magnitude. The term is usually confined to a unidirectional current.
1411	**ALTERNATING CURRENT.** *A.C.*	An electric current which alternately reverses its direction in a circuit in a periodic manner, the frequency being independent of the constants of the system.

No.	TERM.	DEFINITION.
1412	**OSCILLATING CURRENT.** OSCILLATORY CURRENT.	An electric current which alternately reverses its direction in a circuit in a periodic manner, the frequency being dependent solely on the constants of the system.
1413	**PERIOD.** PERIODIC TIME	A varying quantity which repeats its values regularly at equal time intervals is said to be **PERIODIC** and the time interval of one repetition, including both positive and negative values, is known as the Period. Symbol : T.
1414	**FREQUENCY.** PERIODICITY, *deprecated.*	The reciprocal of the period. In practice, the number of cycles per second. Symbol : f.
1415	**CYCLE.** COMPLETE CYCLE.	The complete series of changes taking place in the value of a recurring variable quantity during a period. For example, an alternating current passes through its cycle of values once in every period.
1416	**CURRENT DENSITY.**	The value of the uniform electric current flowing in a conductor per unit area of cross-section. It is usually expressed in amperes per square inch or per square centimetre.
1417	**QUANTITY OF ELECTRICITY.**	The product of the current in a circuit and the time during which it flows. Symbol : Q. Units : the Coulomb, and the Ampere-hour.
1418	**RESISTANCE.**	That property of a substance or body by virtue of which it resists the flow of electricity through it, causing a dissipation of electrical energy as heat. Symbol : R. Unit: the Ohm.
		NOTE.—If a steady current flows through a conductor the ratio of the applied voltage to the current flowing is a measure of the resistance. The ratio so obtained with a steady current is preferably known as the **DIRECT-CURRENT RESISTANCE** (TRUE RESISTANCE, OHMIC RESISTANCE), to distinguish it from the ratio obtained with a varying current (*cf.* Effective Resistance and Impedance.)

No.	TERM.	DEFINITION.
1419	**EFFECTIVE RESISTANCE.**	The resistance of a substance or body to an alternating or pulsating current, being measured by the total losses occurring from all causes divided by the square of the R.M.S. value of the current.
1420	**CONDUCTANCE.**	The reciprocal of resistance. Symbol: G. Unit: The Mho.
1421	**VOLUME RESISTIVITY.** SPECIFIC RESISTANCE.	The direct-current resistance between opposite faces of a unit cube of a given material at a given temperature. Symbol: ρ.
1422	**CONDUCTIVITY.**	The reciprocal of volume resistivity.
1423	**MASS RESISTIVITY.**	The product of the volume resistivity and the density of a given material at a given temperature.
1424	**CONDUCTOR**	A body or substance which offers a low resistance to the passage of an electric current.
1425	**IMPEDANCE.** APPARENT RESISTANCE.	The ratio of the R.M.S. electromotive force in a circuit to the R.M.S. current which is produced thereby. Symbol: Z.
1426	**ADMITTANCE.**	The reciprocal of impedance.
1427	**REACTANCE.**	The component of the impedance which is in quadrature with the current. The reactance $= Z \sin \phi$ where $\cos \phi$ is the power factor and Z is the impedance. Symbol: X.
1428	**VOLTAGE DROP.**	The voltage between any two given points on a conductor. With direct current the voltage drop equals the current in amperes multiplied by the resistance in ohms between the two points. With alternating current the voltage drop equals the current in amperes multiplied by the impedance in ohms between the two points.

No.	TERM.	DEFINITION.
1429	**RESISTANCE DROP.**	With alternating current, that component of the voltage drop which equals the current in amperes multiplied by the resistance in ohms between the two points.
1430	**REACTANCE DROP.**	With alternating current, that component of the voltage drop which equals the current in amperes multiplied by the reactance in ohms between the two points.
1431	**INSULATING MATERIAL.** DIELECTRIC, *deprecated.* INSULATION, *deprecated.* INSULATOR, *deprecated.*	Material which offers relatively high resistance to the passage of an electric current. The term **INSULANT** has been suggested as a substitute for the words "Insulating Material."
1432	**INSULATE, TO.**	To surround or support a conductor by insulating material so as to restrict the flow of electricity to a desired path.
1433	**INSULATION.**	That which serves to insulate.
1434	**ELECTRIC STRENGTH.** DIELECTRIC STRENGTH. DIELECTRIC RIGIDITY. DISRUPTIVE STRENGTH.	The property of an insulating material which enables it to withstand electric stress; it is usually expressed in kilovolts per millimetre, under specified conditions.
1435	**ELECTRIC STRESS.** DIELECTRIC STRESS	The stress occurring in an insulating material when subjected to a potential difference
1436	**DIELECTRIC HYSTERESIS.**	The lagging of the electrostatic flux behind the electric force producing it, so that a dissipation of energy occurs, which is usually known as the **DIELECTRIC HYSTERESIS LOSS.**
1437	**DIELECTRIC LOSS.**	The total dissipation of energy which occurs in an insulating material when it is subjected to an alternating electric stress.
1438	**INSULATION RESISTANCE.** *Insulation.*	The resistance under certain specified conditions between two conductors or systems of conductors normally separated by an insulating material. The term **INSULANCE** has been suggested as a substitute for "Insulating Resistance."
1439	**LEAKANCE.**	The reciprocal of the insulation resistance.

SUB-SECTION 15. UNITS.

No.	TERM.	DEFINITION.
1501	**PHYSICAL UNITS.**	Selected physical quantities in terms of which the magnitudes of other physical quantities, of a like kind, may be reckoned or expressed.
1502	**FUNDAMENTAL UNITS.**	The units of length, mass and time, in terms of which all other units can be expressed.
1503	**DERIVED UNITS.**	Units other than those of length, mass and time.
1504	**ABSOLUTE.**	A term applied to a system of magnitudes when all are defined in terms of the fundamental units, without the introduction of multiples or sub-multiples.
1505	**ABSOLUTE UNITS.**	Units so chosen as to be consistent with a recognised system of fundamental units, as distinguished from units defined with reference to arbitrary standards.
1506	**SYSTEM OF C.G.S. UNITS.** *Ab'n. for System of Centimetre - Gramme - Second Units.*	A system of physical units in which the centimetre, gramme and second are the fundamental units.
1507	**SYSTEM OF ELECTROSTATIC UNITS.**	A system of absolute electrical units based on the C.G.S. system and having, as its primary electrical unit, the unit of quantity or charge.
1508	**SYSTEM OF ELECTROMAGNETIC UNITS.**	A system of absolute electrical units based on the C.G.S. system and having, as its primary electrical unit, the unit magnetic pole.
1509	**PRACTICAL UNITS.**	Units which have been adopted for practical use owing to the C.G.S. units being in many cases inconveniently large or small; each is a decimal multiple or sub-multiple of the corresponding C.G.S. unit, *e.g.*, the ampere is one-tenth of, and the volt is one hundred million times, the corresponding C.G.S. electro-magnetic unit.

No.	TERM.	DEFINITION.
1510	**DYNE.**	A unit of force. It is that force which, acting on a mass of one gramme, gives to it an acceleration of one centimetre per second.
1511	**CALORIE.** SMALL CALORIE. GRAMME CALORIE.	A unit of heat. It is the quantity of heat required to raise the temperature of one gramme of water, at 15°C., by one degree centigrade. A calorie is approximately equal to 4·2 joules.
1512	**KILO-CALORIE.** GREAT CALORIE.	A unit of heat equal to one thousand calories.
1513	**BRITISH THERMAL UNIT.** *B.Th.U.*	A unit of heat. It is the quantity of heat required to raise the temperature of one pound of water from 60° F. to 61° F. A B.Th.U is equal to 1,054 joules.
1514	**THERM.**	A unit of heat applied especially to gas. A therm is equal to 100,000 British Thermal Units. It is now the recognised unit for the sale of gas in Great Britain.
1515	**AMPERE.** *Amp.*	The practical unit of electric current. It is one-tenth of the C.G.S. electro-magnetic unit. Symbol: A. The **INTERNATIONAL AMPERE.** The unit of current in common use, being the current which, when passed through a solution of nitrate of silver in water, will deposit silver at the rate of 0·00111800 gramme per second.
1516	**OHM.**	The practical unit of resistance. Symbol: Ω. (*a*) The **TRUE OHM.** The true value of the Ohm being equal to 10^9 C.G.S. electro-magnetic units. (*b*) The **INTERNATIONAL OHM.** (STANDARD OHM, B.O.T. OHM.) The unit of resistance in common use, being the resistance offered, at the temperature of melting ice, to an unvarying electric current by a column of mercury 14·4521 grammes in mass, of uniform cross-sectional area and 106·300 centimetres in length.

No.	TERM	DEFINITION.
1516	**OHM**—*continued.*	(*c*) **B.A. OHM.** A unit of resistance adopted by the British Association in the year 1865, but now superseded by the International Ohm. It is equal to 0·9866 International Ohm.
		(*d*) **LEGAL OHM.** A unit of resistance adopted by a Commission of the International Congress of Electricians at Paris in 1884, but to which legal sanction was never given.
1517	**MHO.**	A practical unit of conductance. It is the conductance of a body having a resistance of one ohm.
1518	**VOLT.**	The practical unit of potential difference. It is that potential difference which, applied steadily to a conductor the resistance of which is one ohm, produces a current of one ampere. A volt is equal to 10^8 C.G.S. electro-magnetic units. Symbol: V.
		The **INTERNATIONAL VOLT.** The unit of potential difference in common use, being the potential difference, which, when steadily applied to a conductor, the resistance of which is one International Ohm, will produce a current of one International Ampere.
1519	**WATT.**	A practical unit of power. It is the amount of energy expended per second by an unvarying current of one ampere under a voltage of one volt. With alternating current, the product of the instantaneous value of the amperes and the instantaneous value of the volts gives the instantaneous value of the power in watts and the mean value, over a whole period, is the power in watts. A watt is equal to 10^7 ergs per second, or one joule per second. Symbol: W.
1520	**KILOWATT.**	A unit of power equal to one thousand watts. A kilowatt is approximately equal to 1·34 British Horse-Power. Symbol: kW.

No.	TERM.	DEFINITION.
1521	**HORSE-POWER.**	A practical unit of power. The British horse-power is equal to 33,000 foot-pounds per minute, or approximately 746 watts.
1522	**VOLT-AMPERE.**	A unit in terms of which the product of the R.M.S. amperes and the R.M.S. volts is expressed. Symbol: VA.
1523	**KILOVOLT-AMPERE.**	A unit equal to one thousand volt-amperes. Symbol: kVA.
1524	**COULOMB.**	A unit for quantity of electricity. It is equivalent to one ampere flowing for one second. One coulomb is equal to 1/3,600 ampere-hour. This unit is seldom used commercially, its place being taken by the ampere-hour. Symbol: C.
1525	**AMPERE-HOUR.**	A practical unit for quantity of electricity. The quantity measured in ampere-hours is equal to the product of the current in amperes, and the time in hours during which it flows. One ampere-hour is equal to 3,600 coulombs. Symbol: Ah
1526	**ERG.**	A unit of energy. It is the energy expended when a force of one dyne is overcome through a distance of one centimetre. An erg is equal to 10^{-7} joules.
1527	**JOULE.**	A unit of energy. It is equal to 10^{7} ergs. Symbol: J.
1528	**WATT-HOUR.**	A unit of energy. It is the energy expended in one hour at a rate of one watt. A watt-hour is equal to 3,600 joules. Symbol: Wh.
1529	**KILOWATT HOUR.** *KWh.*	A unit of energy equal to one thousand watt-hours. Symbol: kWh.
1530	**UNIT OF ELECTRICITY.** *Unit.* KELVIN, BOARD OF TRADE UNIT *B.T.U.*	A unit of electrical energy. It is equal to one kilowatt hour, or 3,415 British Thermal Units, or $2{\cdot}6552 \times 10^{6}$ foot-pounds.
1531	**HENRY.**	A practical unit of self or mutual inductance in the electro-magnetic system. It is equal to 10^{9} C.G.S. electro-magnetic units. Symbol: H.

No.	TERM.	DEFINITION.
1532	**FARAD.**	A practical unit of electrostatic capacity in the electro-magnetic system. It is equal to 10^9 C.G.S. electro-magnetic units. Symbol: F.
1533	**MICROFARAD.**	A unit of electrostatic capacity equal to 10^{-6} farad. Symbol: μF.
1534	**PICOFARAD.**	A unit of electrostatic capacity equal to 10^{-12} farad. Symbol: $\mu\mu$F.
1535	**JAR.**	A unit of electrostatic capacity used chiefly in the British Navy. It is equal to 1/900 microfarad.
1536	**MAXWELL.**	The C.G.S. electro-magnetic unit of magnetic flux.
1537	**GAUSS.**	The C.G.S. electro-magnetic unit of flux density. It is equal to one maxwell per square centimetre.
1538	**AMPERE-TURN.**	A practical unit of magnetomotive force. The magnetomotive force so expressed is the product of the number of turns of a coil multiplied by the current in amperes which flows through it.
1539	**MEG, *or* MEGA.**	A prefix signifying one million times, *e.g.*, megohms, one million ohms; or megavolt, one million volts. Symbol: M.
1540	**KILO.**	A prefix signifying one-thousand times, *e.g.*, kilowatt, one-thousand watts. Symbol: k.
1541	**MILLI.**	A prefix signifying the one-thousandth part, *e.g.*, milliampere, one-thousandth of an ampere. Symbol: m.
1542	**MICRO.**	A prefix signifying the one-millionth part, *e.g.*, micro-ampere, one-millionth of an ampere; micro-farad, one-millionth of a farad. Symbol: μ.
1543	**MICRON.**	A unit of length, equal to one-millionth of a metre or one-thousandth of a millimetre.
1544	**MIL.**	A unit of length, equal to one-thousandth of an inch.
1545	**CIRCULAR MIL.**	A unit of area, equal to the area of a circle of which the diameter is one-thousandth of an inch.

SUB-SECTION 16/17. TECHNOLOGICAL TERMS.

No.	TERM.	DEFINITION.
1601	**WAVE.**	The process whereby energy is transmitted through a medium by virtue of its inertia and elasticity, or properties analogous to these, the parts of the medium merely undergoing periodic change without resultant permanent change.
1602	**WAVE FORM.**	The shape of the graph representing the instantaneous values of a periodically varying quantity plotted against time. If not sine-shaped, it is usually described as being **DISTORTED.**
1603	**HARMONIC.**	An oscillation of a periodically varying quantity having a frequency which is an integral multiple of the fundamental frequency. A harmonic having double the fundamental frequency is known as the **SECOND HARMONIC** and so on.
1604	**PEAK VALUE.** CREST VALUE. AMPLITUDE, *deprecated.*	Of a wave. The maximum positive or negative value attained. The positive and negative values need not necessarily be equal.
1605	**DOUBLE AMPLITUDE.** AMPLITUDE, *deprecated.*	Of a wave. The extreme range. *i.e.*, the sum of the positive and negative peak values. This term is usually confined to those cases in which the positive and negative peak values are equal.
1606	**INSTANTANEOUS VALUE.**	The value of a varying quantity at a particular instant of time. Symbols: lower case letters, *e.g.*, i, v.
1607	**R.M.S. VALUE.** *Ab'n. for Root-mean-square value.* EFFECTIVE VALUE. VIRTUAL VALUE.	Of Amperes, Volts, or other recurring variable quantity. The square root of the mean value of the squares of the instantaneous values taken over one complete cycle.
1608	**EQUIVALENT SINE WAVE.**	A sine wave which has the same R.M.S. value and the same fundamental frequency as a given wave.
1609	**PEAK FACTOR.** CREST FACTOR. AMPLITUDE FACTOR.	The ratio of the peak value of an alternating or pulsating wave to its R.M.S. value taken over half a period beginning at a zero point. The peak factor of a sine wave is $\sqrt{2}$

No.	TERM.	DEFINITION.
1610	**FORM FACTOR.**	The ratio of the R.M.S. value of an alternating or pulsating wave to its mean value taken over half a period beginning at a zero point. The form factor of a sine wave is 1·111.
1611	**PHASE.**	(*a*) In an operation which recurs harmonically: (1) The stage or state to which the operation has proceeded; (2) The fraction of the whole period which has elapsed, measured from some fixed origin. (*b*) One of the circuits of a polyphase system or apparatus. (*c*) One of the lines or terminals of a polyphase system (*deprecated*).
1612	**PHASE DIFFERENCE.** PHASE DISPLACEMENT.	The difference of phase (usually expressed as a time or as an angle) between two periodic quantities which vary harmonically and have the same frequency. Symbol: ϕ
1613	**PHASE-ANGLE.**	The angle between two vectors representing two simple periodic quantities which vary harmonically and which have the same frequency but differ in phase from one another, *e.g.*, the vectors representing an alternating voltage and the current due to it. The term is often applied to the angle between any two vectors which represent quantities having the same fundamental frequency.
1614	**IN PHASE.**	A qualifying term applied to periodic quantities which vary harmonically and which have the same frequency, to denote that they reach corresponding values simultaneously. In the case of periodic quantities which do not vary harmonically, the term is only applicable to the maximum or zero value.
1615	**OUT OF PHASE.**	A qualifying term applied to periodic quantities which vary harmonically and which have the same frequency, to denote that they do not reach corresponding values simultaneously.

No.	TERM.	DEFINITION.
1616	**SYNCHRONISM.**	The condition existing between two machines or sources of electric supply when they have the same frequency and are in phase.
1617	**SYNCHRONISE, TO.**	To bring two or more machines or sources of supply into synchronism.
1618	**POWER-FACTOR.**	(*a*) In a single-phase system. The ratio of the watts to the volt-amperes. In the case of sine waves it is equal to cos ϕ, where ϕ is the phase difference between them. (*b*) In a balanced polyphase system. The ratio of the total watts to the total volt-amperes. (*c*) In a balanced or unbalanced polyphase system. The ratio of the total watts to the total equivalent volt-amperes.
1619	**TOTAL EQUIVALENT VOLT-AMPERES.**	The sum of the volt-amperes which, if supplied by each main at a prescribed power-factor, would supply the same total watts to a balanced load. If cos ϕ is the polyphase power-factor of the load, as defined above, and Q the total equivalent volt-amperes, then :— Q cos ϕ = algebraical sum of the watts supplied by each main to the load. Q sin ϕ = algebraical sum of the reactive volt-amperes supplied by each main to the load.
1620	**LEAD.**	The interval of time or the angle by which a particular state in one alternating quantity precedes a similar state in another alternating quantity.
1621	**LAG.**	The interval of time or the angle by which a particular state in one periodically varying quantity follows a similar state in another periodically varying quantity.

No.	TERM.	DEFINITION.
1622	**LEADING CURRENT.**	An alternating current the phase of which is in advance of the impressed electromotive force giving rise to it.
1623	**LAGGING CURRENT.**	An alternating current the phase of which is behind the impressed electromotive force giving rise to it.
1624	**ACTIVE VOLTAGE.** ACTIVE COMPONENT, ENERGY COMPONENT, POWER COMPONENT, IN-PHASE COMPONENT, OF THE VOLTAGE	That component of an alternating voltage (regarded as a vector quantity) which is in phase with the current.
1625	**ACTIVE CURRENT.** ACTIVE COMPONENT, ENERGY COMPONENT, POWER COMPONENT, IN-PHASE COMPONENT, OF THE CURRENT.	That component of an alternating current (regarded as a vector quantity) which is in phase with the voltage.
1626	**ACTIVE VOLT-AMPERES.** ACTIVE COMPONENT, ENERGY COMPONENT, POWER COMPONENT, IN-PHASE COMPONENT, OF THE VOLT-AMPERES.	The product of the active voltage and the amperes, or of the active amperes and the voltage. It is equal to the watts.
1627	**REACTIVE VOLTAGE.** REACTIVE COMPONENT, WATTLESS COMPONENT, IDLE COMPONENT, QUADRATURE COMPONENT, OF THE VOLTAGE.	That component of an alternating voltage (regarded as a vector quantity) which is in quadrature with the current.
1628	**REACTIVE CURRENT.** REACTIVE COMPONENT, WATTLESS COMPONENT, IDLE COMPONENT, QUADRATURE COMPONENT, OF THE CURRENT.	That component of an alternating current (regarded as a vector quantity) which is in quadrature with the voltage.
1629	**REACTIVE VOLT-AMPERES.** REACTIVE COMPONENT, WATTLESS COMPONENT, IDLE COMPONENT, QUADRATURE COMPONENT, OF THE VOLT-AMPERES.	The product of the reactive voltage and the amperes, or of the reactive amperes and the voltage.
1630	**REACTIVE FACTOR.**	The ratio of the reactive volt-amperes to the total volt-amperes.
1631	**APPARENT POWER.** *deprecated.*	The product of the R.M.S. value of the current and the R.M.S. value of the voltage in an alternating-current circuit. It is usually expressed in volt-amperes or kilovolt-amperes.
1632	**SINGLE-PHASE.**	A qualifying term, applied to a system or apparatus, to denote one in which there is a single alternating voltage.

No.	TERM.	DEFINITION.
1633	**POLYPHASE.**	A qualifying term, applied to a system or apparatus, to denote one in which there are two or more alternating voltages, usually, but not necessarily, displaced in phase with regard to one another by equal portions of a period. In a **TWO-PHASE** system (U.S.A. QUARTER-PHASE), the displacement is one-quarter of a period; in a **THREE-PHASE** system the displacement is one-third of a period, and so forth.
1634	**SYMMETRICAL POLYPHASE SYSTEM.**	A polyphase system in which the voltages between adjacent lines are sine-shaped, equal in magnitude and differ in phase by the prescribed fraction of a period.
1635	**BALANCED POLYPHASE LOAD.**	A load connected to a symmetrical polyphase system and such that equal currents are taken from each phase and at the same power factor.
1636	**NEUTRAL POINT.** *Neutral.*	Of a system. That point which has the same potential as the point of junction of a group of equal non-reactive resistances, connected at their free ends to the appropriate main terminals or lines of the system. The number of such resistances is 2 for single phase, 4 for 2-phase (applicable to 4-wire systems only) and 3 for three-, six- or twelve-phase systems.
1637	**IN SERIES.**	Two or more conductors are said to be in series when they are so connected that they are traversed by the same current.
1638	**IN PARALLEL.**	(*a*) Two or more conductors are said to be in parallel with one another when the current flowing in the circuit is divided between the two conductors. (*b*) Machines, transformers, cells or the like are said to be in parallel when terminals of the same polarity are electrically connected together.

No.	TERM.	DEFINITION.
1639	**SHUNT.**	One circuit is said to shunt another, or to be in shunt with another, when it is connected in parallel with it.
1640	**SERIES-PARALLEL CONNECTION.**	(*a*) A method of connection in which machines or other apparatus may be connected alternatively in series or in parallel. (*b*) A method of connection in which machines or other apparatus are connected, some in series and some in parallel with one another.
1641	**STAR CONNECTION.**	A method of connection, in three-phase, six-phase or other alternating-current working, in which three or more conductors or windings meet at a common junction known as the Star Point. In three-phase working it is also known as a **Y CONNECTION.**
1642	**MESH CONNECTION.**	A method of connection, in three-phase, six-phase or other alternating-current working, in which windings are connected in series so that they may be represented diagrammatically by a polygon.
1643	**DELTA CONNECTION.** △ *Connection.*	A method of connection, in three-phase alternating-current working, in which three conductors or windings are so connected that they may be represented diagrammatically by a triangle. It is a particular form of mesh connection. Similarly in the case of six-phase A.C. working if the windings are so connected that they may be represented diagrammatically by two triangles, the method of connection is known as a **DOUBLE DELTA CONNECTION.**
1644	**ZIG-ZAG CONNECTION.** ISLE-OF-MAN CONNECTION.	A form of star connection in which each conductor or winding is composed of 2 parts in different and consecutive phases.

No.	TERM.	DEFINITION.
1645	**VOLTAGE BETWEEN LINES.** LINE VOLTAGE. VOLTAGE BETWEEN PHASES. VOLTAGE OF THE SYSTEM.	(*a*) In a single phase system: The voltage between the two lines. (*b*) In a symmetrical two-phase system (three- or four-wire): The voltage between the two lines in the same phase. It is to be distinguished from the voltage between two lines in different phases. (*c*) In a symmetrical three-phase system (DELTA VOLTAGE, MESH VOLTAGE): The voltage between any two lines. (*d*) In a symmetrical six-phase system (HEXAGON VOLTAGE, MESH VOLTAGE): The voltage between any two lines which are consecutive as regards phase sequence. The voltage between alternate lines is known as the **DELTA VOLTAGE.** The voltage between opposite lines is known as the **DIAMETRICAL VOLTAGE.**
1646	**VOLTAGE TO NEUTRAL.** STAR VOLTAGE. Y VOLTAGE. PHASE VOLTAGE, *deprecated.*	In a three-phase or six-phase system. The voltage between any line and the neutral point of the system. Unless the system is symmetrical there may be more than one value for the voltage to neutral.
1647	**POLE.**	Of a circuit or piece of apparatus. Each of the terminals or lines between which a relatively large voltage exists.
1648	**CIRCUIT.**	A number of conductors connected together for the purpose of carrying a current. When they form a closed path through which a current can circulate, the circuit is referred to as **CLOSED**; when the path is not closed the circuit is referred to as **OPEN.**
1649	**CLOSE, TO.**	(*a*) To close a circuit. To connect conductors together so as to form a closed circuit. (*b*) To close a switch or the like. To manipulate a switch in such a manner as to bring the movable parts thereof into a position which permits the passage of an electric current.

No.	TERM.	DEFINITION.
1650	**OPEN, TO.**	(*a*) To open a circuit. To disconnect conductors forming a closed circuit so as to render the circuit open. (*b*) To open a switch or the like. To manipulate a switch in such a manner as to bring its movable parts into a position which does not permit the passage of an electric current.
1651	**ALIVE,** *or* **LIVE.** CHARGED *deprecated.*	A term applied to a conductor or circuit when a potential difference exists between it and earth, or when it is connected to another conductor or circuit in which such a potential difference exists.
1652	**DEAD.**	A term applied to a conductor or circuit when it is not alive.
1653	**EARTH.** GROUND, *U.S.A.*	(*a*) The conducting mass of the earth or of any conductor in direct electrical connection therewith. (*b*) A connection, whether accidenta or intentional, between a conductor and the earth. (*c*) *Verb.* To connect any conductor with the general mass of the earth.
1654	**DEAD EARTH.**	A connection, whether accidental or intentional, between a conductor and the earth by means of a path of relatively low resistance.
1655	**EARTHED CIRCUIT.** GROUNDED CIRCUIT. *U.S.A.*	A circuit one or more points of which are intentionally connected to earth.
1656	**EARTHED POLE.**	That pole or line of an earthed circuit which is connected to earth.
1657	**FAULT.**	Any local defect in the insulation or continuity of a conductor.
1658	**SHORT CIRCUIT.** *Short.*	(*a*) *Substantive.* A connection, whether accidental or intentional, between two points in a circuit by means of a path of relatively low resistance. (*b*) *Verb.* To produce a short-circuit.
1659	**LEAKAGE.**	The passage of electricity in a path, other than that desired, due to imperfect insulation.

No.	TERM.	DEFINITION.
1660	**FAULT CURRENT.**	A current flowing from one conductor to earth, or to another conductor, owing to a defect in the insulation.
1661	**LEAKAGE CURRENT.**	A fault current of relatively small value, as distinguished from that due to a short-circuit or a dead earth.
1662	**EARTH CURRENT.**	A fault current flowing to earth.
1663	**ISOLATING.**	The act of disconnecting a circuit or piece of apparatus from a supply system. The term is usually applied to the opening of a circuit which, at the time, carries no current.
1664	**BACK-ELECTROMOTIVE FORCE.** COUNTER-ELECTROMOTIVE FORCE.	An electromotive force which opposes the normal flow of the current in a circuit.
1665	**OSCILLATION.**	When a system or circuit possessing self-inductance and capacitance is disturbed from its condition of electrical equilibrium, a charge of electricity flows alternately in opposite directions and electric oscillations are said to occur.
1666	**OSCILLATOR.**	A conductor having both self-inductance and capacity of such an amount that electric oscillations can be set up.
1667	**OSCILLATORY CIRCUIT.** OSCILLATION CIRCUIT.	A circuit in which electrical oscillations can take place freely.
1668	**RESONANCE.**	The condition of a system in which the natural period of oscillation is the same as that of the impulses to which it is subjected.
1669	**TRANSIENT.**	A term applied to phenomena which take place in a system owing to a sudden change of conditions and which persist for a relatively short time after the change has occurred, *e.g.*, Transient Voltage.

No.	TERM.	DEFINITION.
1670	**SURGE.**	A transient and abnormal rush of electricity along a conductor.
1671	**OVER-VOLTAGE.** EXCESS VOLTAGE.	A voltage in excess of the normal between two conductors, or between a conductor and earth.
1672	**CHARGE.**	Of a conductor. The total quantity of electricity thereon.
1673	**CHARGE, TO.**	The operation by which any conductor or apparatus receives a quantity of electricity, a part or the whole of which it returns on discharge.
1674	**DISCHARGE, TO.**	The operation by which any conductor or apparatus which has received a charge returns a part or the whole of such charge.
1675	**DISRUPTIVE DISCHARGE.**	The breaking down of an insulating material under dielectric stress, accompanied by the passage of a current.
1676	**DISRUPTIVE VOLTAGE.**	Of an insulator or insulating material. The minimum voltage required to produce a disruptive discharge.
1677	**ARC.**	A luminous discharge of electricity through a gas such that the material of one or both the electrodes is volatilised and takes part in the conduction of the current, whether direct or alternating.
1678	**POLE.**	Of an arc. The extremity of each of the electrodes between which the arc burns.
1679	**SPARK.**	A disruptive discharge of electricity through an insulating material.
1680	**SILENT DISCHARGE.**	A high-voltage electrical discharge which is inaudible but which involves an appreciable expenditure of energy.

No.	TERM.	DEFINITION.
1681	**GLOW DISCHARGE.**	A silent discharge of electricity through a gas such that the gas has a uniformly luminous appearance or glow, but the electrodes are not appreciably volatilised.
1682	**BRUSH DISCHARGE.**	A discharge of electricity having a feathery form and consisting of an intermittent partial discharge which takes place from a conductor when the potential difference exceeds a certain limit but is not high enough to cause the formation of a true spark. It is generally accompanied by a hissing or crackling sound.
1683	**CORONA.**	A discharge of electricity which appears round a conductor when the potential gradient at the surface of the conductor exceeds a certain value.
1684	**STRIÆ.**	The alternate dark and luminous transverse bands which appear at a certain gas pressure in a discharge of electricity through a gas.
1685	**FLASH-OVER.**	The accidental occurrence of an arc between two conducting portions of a machine or piece of apparatus.
1686	**SPARK-OVER TEST.** FLASH-OVER TEST.	A test applied between two conductors separated by an insulating material to determine the minimum voltage at which a spark passes either through the air or along the surface of the insulating material.
1687	**HIGH-VOLTAGE TEST.** FLASH TEST.	A test, applied to a machine, transformer, cable or other apparatus, whereby a voltage greater than the working voltage is applied between parts intended to be insulated from one another, with a view to testing the adequacy of the insulation.
1688	**EDDY CURRENT**	A local current induced in a conducting body by a varying or a relatively moving magnetic field.

No.	TERM.	DEFINITION.
1689	**CONTACT RESISTANCE.**	The resistance at the surface of contact between two conductors (*e.g.*, between brushes and a commutator or between two sections of bus-bar).
1690	**CONTACT E.M.F.**	An electromotive force which may arise when two conductors of different materials are placed in contact.
1691	**TEMPERATURE CO-EFFICIENT.**	The change in the magnitude of any property of a substance (*e.g.*, its resistance) caused by a rise of one degree centigrade in temperature, and expressed as a fraction of the magnitude at some definite temperature adopted as a standard.
1692	**KELVIN'S LAW.**	A principle enunciated by Lord Kelvin in regard to the transmission of electrical energy, namely, that on the assumption that the variable portion of the cost of the line is proportional to the cross-sectional area of the conductor, the most economical size is that for which the annual cost of the energy lost in the line is equal to the cost of interest and depreciation.
1693	**COULOMB'S LAW.**	A principle enunciated by Coulomb in regard to electrostatic attraction and repulsion, namely, that the force of attraction or repulsion between two charged bodies is proportional to the magnitude of their charges and inversely proportional to the square of the distance between them.
1694	**JOULE'S LAW.**	A principle enunciated by Joule in regard to the heating of a conductor carrying a current, namely, that the heat produced by a current I flowing through a resistance R for a time t is proportional to I^2Rt.

No.	TERM.	DEFINITION.
1695	**LENZ'S LAW.**	A principle enunciated by Lenz in regard to currents induced by motion in a magnetic field, namely, that induced currents have such a direction that their reaction tends to oppose the motion which produces them.
1696	**FARADAY'S LAW.**	A principle associated with the name of Faraday, although not enunciated by him, namely, that the induced E.M.F. round any circuit is proportional to the rate of change in the number of lines of force through the circuit.
1697	**MAXWELL'S LAW.**	A principle enunciated by Maxwell in regard to electromagnetic induction, namely, that:— (1) any two circuits carrying current tend to so dispose themselves as to include the largest possible number of lines of force common to the two, and (2) every electromagnetic system tends to change its configuration so that the exciting circuit will embrace the largest number of lines of force in a positive direction.
1698	**VOLTA EFFECT.**	An effect associated with the name of Volta, namely, that when two dissimilar metals are placed in contact with one another in air, one becomes positive and the other negative.
1699	**SKIN EFFECT.**	An electro-magnetic effect, occurring in a conductor when carrying an alternating current, namely, that the current density is greater at the surface of the conductor than in the centre. In the case of very high frequencies the current may be practically confined to the surface.
1700	**JOULE EFFECT.**	An effect associated with the name of Joule, namely, that a conductor becomes heated by the passage through it of an electric current due to the resistance of the conductor.

No.	TERM.	DEFINITION.
1701	**THERMO-ELECTRIC EFFECT.** SEEBECK EFFECT.	An effect sometimes associated with the name of Seebeck, namely, that an E.M.F. arises due to a difference of temperature between two junctions of dissimilar materials in the same circuit.
1702	**THERMO-ELECTRO-MOTIVE FORCE.**	The electromotive force due to a thermo-electric effect.
1703	**THOMSON EFFECT.** KELVIN EFFECT.	An effect associated with the name of Thomson (Kelvin), namely, (*a*) that an E.M.F. arises due to a difference of temperature between two portions of one and the same conductor, and (*b*) a liberation (or absorption) of heat takes place when current flows from a hotter to a colder portion of the same metal.
1704	**PELTIER EFFECT.**	An effect associated with the name of Peltier, namely, that a liberation (or absorption) of heat takes place at the joint where current passes from one material to another.
1705	**PHOTO-ELECTRIC EFFECT.**	Any change in the electrical properties of a body produced by the action of light, *e.g.*, the generation of an E.M.F., a change of resistance or a loss of charge.
1706	**VOLTAIC CURRENT.**	An electric current resulting from chemical action.
1707	**INPUT.**	The total power supplied to a plant, or any part thereof.
1708	**OUTPUT.***	The power given out by a plant, or any part thereof in the specific form and for the specific purpose required.
1709	**LOAD.***	The power taken from one or more machines or transformers, or a group thereof, such as a generating station or a sub-station, or carried by a given circuit.

* The terms "output" and "load" are almost synonymous, but the former has reference, more commonly, to the generation of electrical power and the latter to its consumption.

No.	TERM.	DEFINITION.
1710	**EFFICIENCY.**	Of plant for converting energy from one form to another. The ratio (expressed as a percentage) of the energy output, available in the specific form and for the specific purpose required, to the energy input. In the case of heat or chemical energy, the datum from which this is evaluated must be specified. Symbol: η.
1711	**FULL LOAD.**	Of a machine or transformer. The maximum output under certain specified conditions.
1712	**RATED OUTPUT.** RATED CAPACITY, RATED LOAD.	Of a machine or transformer. The output assigned by the maker as the maximum under certain specified conditions. *cf.* No. 1714.
1713	**RATED INPUT.** RATED CAPACITY, RATED CONSUMPTION.	Of a machine, transformer or other piece of apparatus. The input assigned by the maker as the maximum under certain specified conditions. *cf.* No. 1714.
1714	**RATING.**	Of a machine, transformer, or other piece of apparatus. The value assigned by the maker to some limitations of performance under certain specified conditions, known as the **RATED CONDITIONS.** Thus in the case of a machine the rating may be the output assigned to it by the maker at the rated speed, voltage, frequency, etc., or in the case of a lamp it may be the input in watts, or the candle power in candles, at the rated voltage.
1715	**NO-LOAD.**	Of a machine, transformer or other piece of apparatus. A condition of operation under rated conditions of voltage, speed, etc., but with no output.
1716	**OVERLOAD.**	Of a machine, transformer or other piece of apparatus. Any load in excess of the rated load.

No.	TERM.	DEFINITION.
1717	**NON-REACTIVE LOAD.** NON-INDUCTIVE LOAD.	A load in which the current is in phase with the voltage at the terminals.
1718	**REACTIVE LOAD.**	A load in which the current is out of phase with the voltage at the terminals.
1719	**LAGGING LOAD.** INDUCTIVE LOAD.	A reactive load in which the phase of the current is behind the phase of the voltage at the terminals.
1720	**LEADING LOAD.** CONDENSIVE LOAD.	A reactive load in which the phase of the current is in advance of the phase of the voltage at the terminals.
1721	**DAMPED.**	A term applied to a system which is capable of oscillation, and in which there is an expenditure of frictional, electrical or other form of energy in consequence of which the amplitude of the free oscillations decreases progressively. The term **DAMPING** is used to denote both the cause of the energy loss and the progressive decrease of amplitude. The least value of the damping necessary to prevent oscillation is known as the **CRITICAL DAMPING.**
1722	**APERIODIC.**	A term applied to a system in which the damping is sufficient to prevent oscillation so that the system moves steadily to its position of equilibrium.
1723	**DEAD BEAT.**	A term applied to an instrument or other mechanism when it is so damped that the oscillatory motion of its moving parts rapidly dies away.

SUB-SECTION 18. APPARATUS.

No.	TERM.	DEFINITION.
1801	**INSULATOR.**	An appliance used to insulate and usually also to support a conductor.
1802	**RESISTOR.** RESISTANCE.	A piece of apparatus used primarily because it possesses the property of resistance.
1803	**INDUCTIVE RESISTOR.**	A resistor having appreciable inductance.
1804	**NON-INDUCTIVE RESISTOR.**	A resistor having negligible inductance.
1805	**SHUNT.**	Of an instrument. A resistor of low value used for the measurement of current by means of a potentiometer or of an ammeter through which only a fraction of the total current passes.
1806	**RHEOSTAT.**	A resistor provided with means for readily varying the amount of resistance in circuit.
1807	**GRID.**	Of a resistor. A cast or stamped unit forming part of a resistor.
1808	**REACTOR.**	A piece of apparatus used primarily because it possesses the property of reactance.
1809	**INDUCTOR.** INDUCTANCE, REACTANCE COIL, CHOKING COIL.	A piece of apparatus used primarily because it possesses the property of inductance.
1810	**CONDENSER.**	A piece of apparatus consisting of conducting surfaces (known as the **PLATES** or electrodes) at a small distance apart and separated by an insulating material. When a voltage is applied between the plates, the condenser is said to be **CHARGED,** and the quantity of electricity on the positive plate is known as the **CHARGE** of the Condenser. When the plates are brought to the same potential, the condenser is said to be **DISCHARGED.** It is suggested that the new term **CAPACITOR** shall be used for this device in order to avoid confusion with a steam "Condenser."

No.	TERM.	DEFINITION.
1811	**LEYDEN JAR.**	A condenser consisting, in its original form, of a jar, generally of glass, having conducting surfaces inside and out.
1812	**ELECTROLYTIC CONDENSER.**	A condenser in which an electrolyte is used in place of the insulating material, and in which, consequently, the voltage that can be applied per cell is limited by the decomposition voltage of the cell.
1813	**PLATES.**	Of a condenser. The two conductors which, separated by an insulating material, constitute the condenser.
1814	**BATTERY.**	Two or more condensers, cells or other pieces of apparatus electrically connected in one circuit.
1815	**BANK.**	A number of similar pieces of apparatus grouped and connected to act together.
1816	**WINDING.**	A general term applied to an assemblage of insulated conductors forming part of a machine, transformer or piece of apparatus and intended either to produce a magnetic field or to be acted upon thereby.
1817	**COIL.**	A compact arrangement of convolutions of one or more conductors.
1818	**SPOOL.** BOBBIN, FORMER.	A flanged structure specially intended for the reception and support of a coil.
1819	**SHUNT WINDING.** SHUNT COIL.	A coil or winding which is connected in shunt to some part of the main circuit.
1820	**SERIES WINDING.** SERIES COIL.	A coil or winding which is connected in series with the main circuit.
1821	**SOLENOID.**	A coil, usually of tubular form, for producing a magnetic field.
1822	**EXPLORING COIL.**	A coil used for measuring the flux in a magnetic field.
1823	**DIFFERENTIALLY WOUND.** *Differential.*	A term applied to a piece of apparatus having two windings excited by distinct currents and so arranged that their electro-magnetic effects are opposed.

No.	TERM.	DEFINITION.
1824	**DIFFERENTIAL WINDINGS.**	The windings of a differentially-wound piece of apparatus.
1825	**AIR-GAP.**	An interruption in the ferro-magnetic portion of a magnetic circuit and usually short compared with the length of the remainder of the circuit when measured along the path of the magnetic flux.
1826	**PERMANENT MAGNET.**	A body which, having been magnetised, retains a substantial proportion of its magnetisation.
1827	**ELECTRO-MAGNET.**	A piece of apparatus embodying a ferro-magnetic core which is magnetised only when an electric current passes through a winding surrounding the core.
1828	**MAGNETISING COIL.** MAGNET COIL, FIELD COIL.	A coil used for magnetising an electro-magnet, such as the magnet of a generator.
1829	**CORE.**	Of an electro-magnetic circuit. That part of the magnetic circuit which is within the winding.
1830	**YOKE.**	Of an electro-magnet. A piece of ferro-magnetic material, not surrounded by windings, forming a fixed part of the magnetic circuit and serving to complete that circuit.
1831	**ARMATURE.**	(*a*) Of a permanent magnet. (KEEPER). A piece of ferro-magnetic material placed against the extremities of a permanent magnet so as to complete the magnetic circuit. (*b*) Of an electro-magnet. A body made of ferro-magnetic material arranged in such a way as to be displaced by the magnetic action of the electro-magnet.
1832	**POLE**	Of a magnet. One of the points towards which lines of force converge, or at which resultant magnetic forces may be considered to act.
1833	**CONSEQUENT POLE.**	(*a*) Of a permanent magnet. A pole occurring on a part of a magnet remote from either free end.

No.	TERM.	DEFINITION.
1834	**CONSEQUENT POLE**—*contd.*	(*b*) Of an electro-magnetic circuit. A magnetic pole which occurs in a magnetic circuit at a point between two magnetising coils when the magnetomotive forces of the coils are in opposition.
1835	**POLE FACE.**	The terminal surface of the core of a magnet from which surface the useful flux emerges.
1836	**ASTATIC.**	A term applied to a system of magnets or coils when the polarities of its parts are so arranged that no directive effect is exerted on the system by a uniform external magnetic field.
1837	**INDUCTION COIL.** *Coil.* SPARK COIL. RUHMKORFF COIL.	A transformer suitable for developing a high voltage when its primary winding is excited by an interrupted or variable unidirectional current; it usually has an open magnetic circuit.
1838	**DISCHARGE TUBE.** VACUUM TUBE.	A tube of insulating material which is provided with electrodes, and which, when exhausted to a sufficiently low gas pressure, permits the passage of a discharge, if a sufficiently high voltage is applied to the electrodes.
1839	**SPARK GAP.** DISCHARGER.	Any special arrangement of electrodes between which it is intended that a disruptive discharge of electricity shall take place, and such that the insulation is self-restoring after the passage of a discharge.
1840	**SPHERE GAP.**	A spark gap in which the electrodes are in the form of spheres.
1841	**NEEDLE-POINT GAP.**	A spark gap in which the electrodes are in the form of needle points.
1842	**HORN GAP.**	A spark gap of gradually increasing width serving to attenuate and break any arc formed across it. It is largely used in connection with over-voltage protective devices.
1843	**KEY.**	A switch for closing or opening a circuit, operated by hand, and normally held in one position by means of a spring.

No.	TERM.	DEFINITION.
1844	**RELAY.**	A device by means of which one circuit is indirectly controlled by a change in the same or another circuit.
1845	**THERMIONIC RELAY.**	A thermionic valve together with its associated circuits, so arranged as to perform the functions of a relay.
1846	**COMMUTATE, TO.**	To convert an alternating into a direct current, or vice-versa, by means of a device known as a commutator. A machine provided with a commutator is sometimes known as a **COMMUTATING MACHINE.**
1847	**RECTIFY, TO.**	To convert an alternating or oscillating current into a unidirectional current.
1848	**RECTIFIER.**	A device for converting an alternating or oscillating current into a unidirectional current, either by the inversion or the suppression of one half-wave.
1849	**MECHANICAL RECTIFIER.**	A rectifier in which a synchronously rotating commutator is employed to invert one half of the wave.
1850	**ELECTROLYTIC RECTIFIER.**	A rectifier comprising electrodes immersed in an electrolyte and depending for its action on the property possessed by certain metals, when so immersed, of allowing the passage of a current in one direction only.
1851	**DISCHARGE TUBE RECTIFIER.**	A rectifier consisting of a discharge tube in which the electrodes are so shaped as to allow the passage of current in one direction only.
1852	**ARC RECTIFIER.**	A rectifier in which an arc is maintained between two electrodes, the cathode being kept at incandescence by the passage of the rectified current. It depends for its action upon the thermionic discharge from the cathode allowing the passage of current in one direction only.

No.	TERM.	DEFINITION.
1853	**THERMIONIC RECTIFIER.**	A rectifier consisting of a discharge tube, the cathode of which is maintained at incandescence by an independent source of energy. It depends for its action upon the thermionic discharge from the cathode allowing the passage of current in one direction only.
1854	**TERMINAL.**	That portion of a circuit or piece of apparatus which is intended for the reception of conductors by means of which it may be connected electrically to another circuit or piece of apparatus.
1855	**ELECTRODE.**	A conductor by means of which a current passes into or out of a liquid or gas, *e.g.*, the electrodes of an electrolytic cell, of an electric furnace or of a discharge tube. The term is also applied to conducting elements separated by an insulating material, as in a condenser.
1856	**ANODE.**	The electrode through which a direct current enters a liquid or gas.
1857	**CATHODE.**	The electrode through which a direct current leaves a liquid or gas.
1858	**THERMO-COUPLE.**	A pair of conductors so joined as to produce a thermo-electric effect.
1859	**THERMO-JUNCTION.**	The point of contact of a pair of conductors forming a thermo-couple.
1860	**THERMOPILE.** *Ab'n. for Thermo-Electric Pile.*	A source of electrical energy due to the direct transformation of heat and generally consisting of a series of thermo-couples.
1861	**THERMOSTAT.**	An automatic device responsive to changes of temperature. In electrical work it usually opens or closes a circuit.
1862	**EARTH PLATE.**	A conductor buried in the earth for the purpose of providing a connection with the earth.
1863	**EARTH TERMINAL.** EARTHING TERMINAL.	A terminal provided on the frame of a machine or piece of apparatus for the purpose of making a connection to earth.

SUB-SECTION 19. MECHANICAL AND GENERAL TERMS

No.	TERM.	DEFINITION.
1901	**TIME-CONSTANT.**	When the rate at which a function is diminishing equals that function multiplied by a constant quantity, the reciprocal of this quantity is called the time-constant. It is equal to the time taken by the function to fall to $1/e$ that is, to 3·68 per cent. of its initial value.
1902	**HYSTERESIS.**	General. The lagging of the strain behind the stress giving rise to it
1903	**POWER.**	The rate of doing work. Units: the Watt, Kilowatt or Horse-power. Symbol: *P*.
1904	**DENSITY.**	The mass of unit volume.
1905	**SAFETY FACTOR.** FACTOR OF SAFETY	The ratio of the stress which produces permanent injury or breakdown to the maximum normal working stress.
1906	**TOLERANCE.**	The permissible divergence of an actual magnitude from that prescribed.
1907	**GRAPH.** CURVE.	A line drawn with reference to co-ordinates to shew the relationship existing between two variable quantities which are inter-dependent.
1908	**CHARACTERISTIC CURVE.**	A graph, representing the relation between two magnitudes, which characterises the behaviour of a machine or piece of apparatus, *e.g.*, the electromotive force of a generator as a function of the exciting current.
1909	**DYNAMOMETER.**	(*a*) A piece of apparatus for measuring a force the point of application of which is moving. (*b*) A piece of apparatus for measuring the torque exerted by a prime mover or electric motor.

No.	TERM.	DEFINITION.
1910	**GAUGE.**	A general term applied to various kinds of measuring instrument.
1911	**WIRE GAUGE.**	(*a*) A system by which the diameters or thicknesses of wires and sheets are defined by numbers, *e.g.*, Standard Wire Gauge (*S.W.G.*). (*b*) A device for determining the gauge number of wire or sheet.
1912	**DASH-POT.**	An appliance for preventing the sudden or oscillatory motion of any moving part of a piece of apparatus, by the friction of air or of a liquid.
1913	**BUSH.**	Of a hole. A lining to a hole, usually intended either to reduce its diameter or to insulate or protect a conductor which passes through it
1914	**BUSH, TO.**	To insert a bush.
1915	**SLUDGE.**	A deposit or precipitate occurring in insulating oils due to the oxidation and polymerisation of the hydrocarbon molecules.
1916	**TEMPERATURE RISE.**	Of a machine, transformer or piece of apparatus. The excess of temperature of any particular part over the temperature of the surrounding atmosphere.
1917	**THERMAL RESISTANCE.**	That property of a substance or body which causes it to resist the transmission of heat. It is measured by the ratio of the difference in temperature to the steady flow of heat produced thereby. It is preferably expressed as a number of degrees centigrade per watt transmitted.
1918	**THERMAL RESISTIVITY.** SPECIFIC THERMAL RESISTANCE.	The thermal resistance between opposite faces of a unit cube of a given material.
1919	**THERMAL CONDUCTIVITY.**	The reciprocal of thermal resistivity.

SECTION 2.

MACHINES AND TRANSFORMERS.

Sub-Section 21. **Generators.**
22. **Motors.**
23. **Composite Machines.** *See* Notes (2) and (3).
24. **Transformers.** *See* Note (3).
25. **Parts of Machines and Transformers.**
26. **Parts and Types of Windings.**
27. **Qualifying Terms applied to Machines and Transformers.**
28. **Miscellaneous Terms.**

NOTES.—(1) For the purposes of this glossary, the term "**Machine**" is to be understood as applying to a continuously rotating or continuously oscillating electrical machine and does not include a stationary piece of apparatus such as a transformer.

(2) Under the head of "**Composite Machines**" are included either single machines or combinations of machines for converting or changing electrical energy in one form into electrical energy in another form.

(3) In classifying machines, whose function it is to alter the form of electrical energy, the following terms are used with the meanings given :—

To **convert** electrical energy from A.C. to D.C. or *vice versa*.

To **change** the frequency or number of phases of an alternating current.

To **transform** electrical energy in one circuit into electrical energy in another circuit, usually at a different value of voltage or current.

(4) The devices usually known as "**Regulators**" are included in Section 3 regardless of their actual constructional features.

SUB-SECTION 21. GENERATORS.

No.	TERM.	DEFINITION.
2101	**GENERATOR.**	(*a*) A machine for converting mechanical energy into electrical energy. (*b*) An abbreviation for **ELECTRO-MAGNETIC GENERATOR.** A generator which depends for its action on electro-magnetic induction.
2102	**ELECTROSTATIC GENERATOR.** INFLUENCE MACHINE. STATIC MACHINE. WIMSHURST MACHINE.	A generator which depends upon electrostatic action.
2103	**DIRECT-CURRENT GENERATOR.** DYNAMO.	An electro-magnetic generator for producing direct current.

No.	TERM.	DEFINITION.
2104	**HOMOPOLAR GENERATOR.** UNIPOLAR GENERATOR. ACYCLIC GENERATOR.	A D.C. generator in which the voltage generated in the active conductors maintains the same direction with respect to those conductors.
2105	**MAGNETO-ELECTRIC GENERATOR.** *Magneto.*	An electro-magnetic generator the field magnets of which are permanent magnets.
2106	**MILKING GENERATOR.** MILKER. MILKING BOOSTER, *deprecated.*	A D.C. generator of low voltage, by means of which one or more cells in an accumulator battery may be given a charge or be kept from discharging, independently of the remainder.
2107	**ALTERNATING-CURRENT GENERATOR.** ALTERNATOR.	An electro-magnetic generator for producing alternating current.
2108	**SYNCHRONOUS ALTERNATING-CURRENT GENERATOR.**	An A.C. generator, generally provided with field windings excited by means of direct current and capable, when driven at the appropriate speed, of giving its output independently of any other source of alternating current.
2109	**REACTION ALTERNATING-CURRENT GENERATOR.**	A synchronous A.C. generator which has salient poles but no field winding, and which is therefore dependent for its exciting current upon an independent source of alternating current at the required frequency.
2110	**INDUCTION GENERATOR.**	An A.C. generator having the construction of an induction motor which, when its primary windings are excited from an A.C. source, and when it is mechanically driven above the synchronous speed corresponding to that source, delivers A.C. energy at the frequency of the A.C. excitation.
2111	**INDUCTOR GENERATOR.**	An A.C. generator in which the field magnet coils are fixed in position with respect to the armature conductors, the E.M.F. being produced by the movement of masses of ferro-magnetic material.
2112	**EXCITER.**	A D.C. generator for producing the excitation of the field magnets of another electrical machine.

No.	TERM.	DEFINITION.
2113	**GENERATING SET.**	A combination of one or more generators with one or more prime movers.
2114	**EXCITER SET.**	A combination of one or more exciters with a prime mover or driving motor.
2115	**BOOSTER.**	A generator or transformer interposed in a circuit for the purpose either of increasing or of decreasing the voltage acting in the circuit.
2116	**NEGATIVE BOOSTER.**	A booster used in connection with an earthed return system for the purpose of reducing the difference of potential between any two points of the earthed return. It is connected in series with a supplementary insulated feeder running from the negative bar of the generating station or sub-station to a distant point on the earthed return.
2117	**REVERSIBLE BOOSTER.**	A booster capable, at will, of adding to or subtracting from an independent voltage acting in a circuit.
2118	**DIFFERENTIAL BOOSTER.**	A booster having a differentially wound field magnet.

SUB-SECTION 22. MOTORS.

No.	TERM.	DEFINITION.
2201	**MOTOR.**	A machine for converting electrical energy into mechanical energy.
2202	**DIRECT-CURRENT MOTOR.**	A motor suitable for operation by direct current.
2203	**ALTERNATING-CURRENT MOTOR.**	A motor suitable for operation by alternating current.
2204	**ALTERNATING-CURRENT COMMUTATOR MOTOR.**	An A.C. motor having an armature with a commutator.
2205	**SYNCHRONOUS MOTOR.**	An A.C. motor the angular velocity of whose rotor is equal to the angular velocity corresponding to the frequency of the supply.
2206	**NON-SYNCHRONOUS MOTOR.** ASYNCHRONOUS MOTOR.	An A.C. motor, the angular velocity of whose rotor bears no fixed

No.	TERM.	DEFINITION.
2207	**AUTO-SYNCHRONOUS MOTOR.**	A synchronous motor provided with additional windings so that it may be started automatically. The term **SYNAUT MOTOR** has been suggested for this class of machine.
2208	**INDUCTION MOTOR.**	An A.C. motor in which one member, usually the rotor, receives current by electromagnetic induction and not by conduction. Since an induction motor usually runs non-synchronously, it is sometimes known as an ASYNCHRONOUS MOTOR, but the use of this term is deprecated.
2209	**SYNCHRONOUS INDUCTION MOTOR.**	An induction motor provided with windings such that while starting as an induction motor it will ultimately run in synchronism. The term **SYNDUCT MOTOR** has been suggested for this class of machine.
2210	**VARIABLE-SPEED MOTOR.** ADJUSTABLE-SPEED MOTOR, *U.S.A.*	A motor the speed of which can be varied gradually over a specified range, but which, when once adjusted, remains practically unaffected by the load.
2211	**CHANGE-SPEED MOTOR.** MULTI-SPEED MOTOR, *U.S.A.*	A motor which can be operated at any one of several distinct speeds which are practically independent of the load, *e.g.*, by changing the number of poles.
2212	**INVERSE-SPEED MOTOR.**	A motor in which the speed decreases, when the load increases, as with a series-wound or over-compound-wound motor.
2213	**TORQUE MOTOR.**	A motor which does not rotate continuously, but is arranged to exert a torque against some controlling force such as a spring, *e.g.*, for the operation of rheostats, brakes, etc.
2214	**BOX FRAME MOTOR.**	(*a*) A traction motor in which the casting for the magnet frame is in one piece and not split. (*b*) An A.C. motor in which the stator frame casting encloses and protects the laminations.

SUB-SECTION 23. COMPOSITE MACHINES.

No.	TERM.	DEFINITION.
2301	**MOTOR GENERATOR.** MOTOR GENERATOR SET.	A combination of one or more generators directly coupled to one or more motors.
2302	**DYNAMOTOR.** ROTARY TRANSFORMER.	A machine combining both motor and generator action in one magnetic field, but having two separate armature windings with independent commutators.
2303	**DIRECT-CURRENT BALANCER.**	A D.C. motor generator or dynamotor used to equalise the voltages between the wires of a multiple-wire D.C. system.
2304	**ALTERNATING-CURRENT BALANCER.** STATIC BALANCER.	An arrangement of reactors or transformers the windings of which are so interconnected as to equalise the voltages between the wires of a multiple-wire A.C. or D.C. system. When used on a D.C. system the ends of the balancer winding are connected to slip-rings, which are themselves connected to points on the armature winding of the D.C. generator.
2305	**CONVERTOR.**	A machine for converting power from A.C. to D.C. or *vice versa*.
2306	**SYNCHRONOUS CONVERTOR.** ROTARY CONVERTOR. ROTARY.	A convertor, of which the angular velocity is equal to the angular velocity corresponding to the frequency of the supply, and which has an armature, with commutator and slip-rings, revolving in a magnetic field.
2307	**MOTOR CONVERTOR.** CASCADE CONVERTOR. *U.S.A.*	A combination of an induction motor with a synchronous convertor upon a common shaft, the secondary current of the former flowing directly into the armature of the latter.
2308	**SYNCHRONOUS CONDENSER.**	A synchronous machine, the function of which is to advance the phase of the current taken from the line by adjustment of the field strength, thus improving the power-factor of the system. The machine may or may not carry some mechanical load.

No.	TERM.	DEFINITION.
2309	**PHASE ADVANCER.**	A machine for supplying leading volt-amperes to the rotor winding of an induction motor.
2310	**FREQUENCY CHANGER.** FREQUENCY CONVERTOR. *(U.S.A., applicable to rotating machines only.)*	A machine or transformer capable of transferring power from a system having one frequency to a system having another frequency.
2311	**PHASE CHANGER.** ROTARY PHASE CONVERTOR.	A machine capable of transferring power from a system having one number of phases to a system having another number of phases.

SUB-SECTION 24. TRANSFORMERS.

No.	TERM.	DEFINITION.
2401	**TRANSFORMER.**	A piece of apparatus without continuously moving parts, which, by electro-magnetic induction, transforms alternating or intermittent electric power in one circuit into alternating electric power in another circuit, usually at a different value of voltage or current.
2402	**CORE-TYPE TRANSFORMER.**	A transformer in which the windings surround an iron core and usually enclose the greater part of it.
2403	**SHELL-TYPE TRANSFORMER.**	A transformer in which the magnetic circuit surrounds the windings and usually encloses the greater part of them.
2404	**SINGLE-PHASE TRANSFORMER.**	A transformer intended for single-phase working.
2405	**THREE-PHASE TRANSFORMER.**	A transformer, intended for three-phase working, in which three magnetic circuits have parts in common.
2406	**STEP-UP TRANSFORMER.**	A transformer designed and connected to transform electric power from a lower to a higher voltage

No.	TERM.	DEFINITION.
2407	**STEP-DOWN TRANSFORMER.**	A transformer designed and connected to transform electric power from a higher to a lower voltage.
2408	**INSTRUMENT TRANSFORMER.**	A transformer for use with a meter, relay or similar piece of apparatus.
2409	**VOLTAGE TRANSFORMER.** POTENTIAL TRANSFORMER. PRESSURE TRANSFORMER.	An instrument transformer for the transformation of voltage from one value to another, usually a lower one.
2410	**CURRENT TRANSFORMER.** SERIES TRANSFORMER.	An instrument transformer for the transformation of current from one value to another, usually a smaller one; or for the transformation of a current which is at high voltage above earth into a proportionate current at a low voltage above earth.
2411	**CONSTANT-CURRENT TRANSFORMER.**	A transformer which is designed to maintain a sensibly constant secondary current within the limits of its operating range, regardless of variation either in the impedance of the secondary circuit or in the voltage applied to the primary.
2412	**AUTO-TRANSFORMER.** COMPENSATOR.	A transformer in which part of the winding is common to both the primary and the secondary circuits.
2413	**BOOSTER TRANSFORMER.** BOOSTER, *deprecated.*	A transformer interposed in a circuit for the purpose either of increasing or of decreasing the voltage acting in that circuit.
2414	**NEUTRAL COMPENSATOR.** NEUTRAL AUTO-TRANSFORMER. EARTHING AUTO-TRANSFORMER. EARTHING REACTANCE. *This last is deprecated.*	An arrangement of reactors or transformers, the windings of which are so interconnected that when the terminals are connected to a single-phase or polyphase system, as the case may be, a neutral point is artificially obtained.

It is suggested that the new term **NEUTRALATOR** shall be used for this device in order to avoid the use of the term "Compensator," which has now been replaced by the term "Auto-transformer."

No.	TERM.	DEFINITION.
2415	**INDUCTION COIL.** *Coil.* SPARK COIL. RUHMKORFF COIL.	A transformer suitable for developing high voltage when its primary winding is excited by an interrupted or variable unidirectional current; it usually has an open magnetic circuit.

SUB-SECTION 25.
PARTS OF MACHINES AND TRANSFORMERS.

No.	TERM.	DEFINITION.
2501	**FIELD MAGNET.**	A permanent magnet or electromagnet which serves to provide a magnetic field in an electrical machine.
2502	**MAGNET FRAME.** MAGNET YOKE.	That portion of a machine which supports the stationary magnet poles and forms part of the magnetic circuit.
2503	**FIELD SPIDER.**	That portion of a machine which supports the revolving magnet poles.
2504	**POLE PIECE.** *Pole.* MAGNET POLE.	Any specially shaped piece of magnetic material forming a polar extension to a magnet.
2505	**COMMUTATING POLE.** *Compole.* INTERPOLE.	An auxiliary pole piece situated between the main poles of a commutating machine in such a way as to produce an auxiliary flux at the point where the armature coils are short-circuited by a brush, this flux being in such a direction and of such a magnitude as to assist the reversal of current in the short-circuited coils. A commutating pole is sometimes constructed as a portion of the main pole piece.
2506	**SALIENT POLE.**	That type of pole piece which projects towards the armature.
2507	**POLE SHOE.**	The separable portion of a pole piece facing the armature of a machine.
2508	**POLE END-PLATE.**	One of the plates between which the laminations of a laminated pole piece may be clamped.

No.	TERM.	DEFINITION.
2509	**POLE FACE.**	The surface of the core or pole piece of an electro-magnet which faces the armature.
2510	**POLE HORN.**	That portion of a pole shoe or pole piece which projects circumferentially beyond the pole core. That horn which is first met during revolution by a point on the armature or stator surface is known as the **LEADING POLE HORN** and the other as the **TRAILING POLE HORN.**
2511	**POLE TIP.**	Either of the two edges of a pole face which are, in general, parallel to the armature shaft. That tip which is first met during revolution by a point on the armature or stator surface, is known as the **LEADING POLE TIP,** and the other as the **TRAILING POLE TIP.**
2512	**POLE BEVEL.**	That portion of a pole face which, instead of being concentric with the armature surface, is bevelled away from it.
2513	**SHIM.** LINER.	A metal plate inserted between two surfaces for the purpose of altering the distance between them, as for example, a pole shim used between a pole piece and a magnet frame.
2514	**AIR GAP.**	An interruption in the ferro-magnetic portion of a magnetic circuit and usually short compared with the length of the remainder of the circuit when measured along the path of the magnetic flux.
2515	**INDUCTOR.**	Of an inductor generator. One of the masses of magnetic material the movement of which serves to effect variations in the magnetic flux passing through the armature coils.
2516	**FIELD COIL.**	The current-carrying coil which serves to magnetise a field magnet. It may or may not be mounted on a field spool.
2517	**FIELD SPOOL.** FIELD BOBBIN. FORMER.	A structure upon which a field coil may be carried. The use of the term as a synonym for Field Coil is deprecated.

No.	TERM.	DEFINITION.
2518	**DIVERTOR.**	A resistor connected in shunt with the series winding or commutating pole winding of a machine for the purpose of diverting a fixed or variable fraction of the current.
2519	**ROTATING FIELD MAGNET.** *Rotating Field.*	The rotating portion of a machine of which the field poles rotate, and the armature is stationary.
2520	**STATOR.** STATOR FRAME	The portion of a machine which contains the stationary magnetic parts with their associated windings. The term is usually applied to an A.C. machine only.
2521	**ROTOR.**	The rotating part of a machine. The term is usually applied to an A.C. machine only.
2522	**CAGE ROTOR.** SQUIRREL-CAGE ROTOR. SHORT-CIRCUITED ROTOR.	A rotor of an induction motor the winding of which consists of a number of bars having their extremities, at each end of the rotor, connected by rings or plates.
2523	**ARMATURE.**	Of a D.C. machine. That part, whether rotating or stationary, which comprises the active windings, core and supports, and which is acted upon inductively by the magnetic flux.
2524	**DRUM ARMATURE.**	An armature of a D.C. machine in which the conductors are arranged on the periphery of the armature, the conductors under consecutive poles being joined to one another by end connections.
2525	**RING ARMATURE.** GRAMME RING ARMATURE.	An armature of a D.C. machine, which is made in the form of a hollow cylinder of iron wound with conductors which pass over the outside of the cylinder and return through the interior, the whole winding forming an endless helix, with connections at intervals to the commutator.
2526	**ARMATURE END-PLATE.** ARMATURE HEAD	One of the castings or plates between which the armature laminations are clamped, and which, in some cases, support the end windings.

No.	TERM.	DEFINITION.
2527	**EQUALIZER RING.**	A conductor on an armature, usually in the form of a ring, which serves to connect two or more points of the winding, which points are normally at the same potential.
2528	**CORE.**	(*a*) Of a machine. That portion of the magnetic circuit within or around which the winding is situated.
		(*b*) Of a transformer. The whole of the iron forming the magnetic circuit.
2529	**ARMATURE CORE.**	The assembly of laminations on the spider or shaft of an armature.
		When reference is made to the magnetic flux density in a slotted core, that portion is usually intended which is between the base of the teeth and the inside of the punchings.
2530	**ROTOR CORE.**	The assembly of the laminations on the spider or shaft of a rotor.
		When reference is made to the magnetic flux density in a slotted core, that portion is usually intended which is between the base of the teeth and the inside of the punchings.
2531	**STATOR CORE.**	The assembly of laminations in a stator frame.
		When reference is made to the magnetic flux density in a slotted core, that portion is usually intended which is between the base of the teeth and the outside of the punchings.
2532	**SMOOTH CORE.**	A core of a machine in which the windings are on the surface of the core and not in slots.
2533	**SLOTTED CORE.**	A core of a machine in which the windings are in slots.
2534	**SLOT.**	Of a slotted core. The recess intended to receive the windings.
2535	**TOOTH.**	Of a slotted core. The projecting portion between two adjacent slots.

No.	TERM.	DEFINITION.
2536	**LAMINATION.** PUNCHING. STAMPING. CORE PLATE.	Of a machine or transformer. Each of the thin sheets of iron or steel which form part of the magnetic circuit.
2537	**SLOT WEDGE.**	A wedge of wood or other material which holds the winding in the slot of a slotted core.
2538	**DOVETAIL KEYWAY.**	A keyway of dovetail shape, sometimes employed for holding segmental laminations in position.
2539	**DOVETAIL KEY.**	A key, one or both sides of which are of dovetail section, sometimes employed for holding segmental laminations in position.
2540	**VENTILATING DUCT.** AIR DUCT.	Of a core. A passage provided through the core for the circulation of air.
2541	**COMMUTATOR.**	Of a machine. An assemblage of conductors, usually in the form of bars, connected to the sections of a winding but insulated from one another, which, by means of brushes sliding thereon, serves to connect each of the sections in turn with an external electrical circuit connected to the brushes. A commutator having N bars is known as an **N-PART COMMUTATOR.**
2542	**COMMUTATOR BAR.** COMMUTATOR SEGMENT.	One of the conducting bars of a commutator.
2543	**COMMUTATOR LUG.** COMMUTATOR RISER. COMMUTATOR TAG.	One of the projecting pieces of metal used in a certain construction of commutator for connecting the bars to the winding.
2544	**METAL V-RING.** METAL V-COLLAR.	Of a commutator. The V-section metal ring used in a certain construction of commutator for clamping the bars in position.
2545	**MICA V-RING.** MICA CONE.	Of a commutator. A V-section ring of mica compound used for insulating a metal V-ring from the bars.
2546	**COMMUTATOR SPIDER.**	A metal structure provided with arms which is used for supporting the bars of a commutator and to which the V-ring is attached.

No.	TERM.	DEFINITION.
2547	**COMMUTATOR SHELL.** COMMUTATOR SLEEVE.	A metal structure of cylindrical form which is used for supporting the bars of a commutator and to which the V-ring is attached.
2548	**COMMUTATOR SURFACE.**	That surface of a commutator on which the brushes slide.
2549	**SLIP RING.** COLLECTOR RING	A conducting ring serving, by means of brushes sliding thereon, to maintain electrical contact between a rotating conductor and a stationary conductor.
2550	**COLLECTOR.**	A set of slip rings with their supporting structure.
2551	**SLIP-RING SPIDER.**	A structure provided with arms and used for supporting slip rings on a shaft.
2552	**SLIP-RING BUSH.**	A bush used for supporting slip rings on a shaft.
2553	**BRUSH.**	A conductor serving to maintain electrical contact between the moving and the stationary parts of a machine or other piece of apparatus. That edge of the contact surface which is first met during revolution by a point on the commutator or other relatively moving conductor is known as the **ENTERING EDGE** and the other as the **LEAVING EDGE** of the brush. Other terms used are LEADING and TRAILING, TOE and HEEL, FRONT and BACK but as these have been used in each sense, their use is deprecated.
2554	**BRUSH-HOLDER.**	That portion of a machine or piece of apparatus which holds the brush or brushes.
2555	**BRUSH-BOX.**	That portion of a brush-holder in which the brush slides or in which it is clamped.
2556	**BRUSH-HOLDER ARM.** BRUSH STUD. BRUSH SPINDLE.	The rod or arm carried by the brush-rocker and supporting one or more brush-holders.

No.	TERM.	DEFINITION.
2557	**BRUSH-ROCKER.** BRUSH-ROCKER RING.	That portion of an electrical machine which enables the position of all the brushes carried by it to be altered simultaneously in either direction.
2558	**ROCKER GEAR.**	The worm wheel or other gear by means of which the position of the brush-rocker may be adjusted.
2559	**BRUSH YOKE.**	A frame for supporting the brush-rocker or brushes, when these are not supported from the frame or pedestal of the machine itself.
2560	**JOURNAL.**	That portion of a shaft which rotates in a bearing.
2561	**BEARING.**	That portion of a machine which supports the shaft; it includes the bearing bush, ball race or roller race, as well as the supporting housing.
2562	**BEARING BUSH.** BEARING LINER. BEARING LINING.	That portion of a bearing in which the journal of the shaft rotates; it includes the bearing lining and its supporting shell, if any.
2563	**BEARING CAP.**	That portion of a bearing housing which covers the bearing bush and holds it in place.
2564	**OIL RING.**	A ring or chain encircling a journal in a bearing and dipping into a reservoir of oil, which ring is caused to rotate by the journal and in so doing carries oil thereto.
2565	**END BRACKET.**	An open structure fitted at the end of the frame of a machine for the purpose of carrying a bearing.
2566	**END-SHIELD.**	A cover which partially or wholly encloses the end of a machine; it is fitted at the end of the frame and carries a bearing (*cf.* No. 2567).
2567	**FENDER.** PROTECTION CAP.	A metal structure or cover attached to the frame of a machine in such a way as partially to enclose the end and to afford protection from accidental contact with the windings or rotating parts. It does not carry a bearing (*cf.* No. 2566).

No.	TERM.	DEFINITION.
2568	**PEDESTAL.**	The pedestal-shaped part of a machine which supports a bearing; it may be a separate piece or an integral portion of the bed-plate. It is usually understood to include the bearing.
2569	**BED-PLATE.** BASE-PLATE.	The structure upon which the frame and bearings of a machine are sometimes mounted.
2570	**SOLE-PLATE.** CAP-PLATE.	One of the separate bed-plates each of which may help to support one portion of a machine.
2571	**SLIDE-BASE.** SLIDING BASE.	A base upon which a machine may be mounted in such a way that its position can be altered by means of a screw, or otherwise, for the purpose of adjusting the tension of the driving belt.
2572	**SLIDE-RAILS.**	Two or more rails on which a machine may be mounted in such a way that its position may be altered by means of screws, or otherwise, for the purpose of adjusting the tension of the driving belt.

SUB-SECTION 26.

PARTS AND TYPES OF WINDINGS.

No.	TERM.	DEFINITION.
2601	**DRUM WINDING.**	The winding on a drum armature.
2602	**RING WINDING.** GRAMME WINDING. TOROIDAL WINDING.	The winding on a ring armature.
2603	**COMPENSATING WINDING.**	A winding of a machine so arranged as to reduce distortion of the magnetic field by the load current; a compensating winding is usually arranged to carry the load current or a current proportional thereto.

No.	TERM.	DEFINITION.
2604	**DAMPER.** DAMPER WINDING. DAMPING WINDING. AMORTISSEUR.	Of a machine. A winding, short-circuited on itself or a mass of metal and so arranged that the current induced therein serves to reduce changes in the angular velocity of the rotating portion.
2605	**PRIMARY WINDING.** *Primary.*	Of a transformer. The winding on the input side, whether the transformer is of the step-up or step-down type.
2606	**SECONDARY WINDING.** *Secondary.*	Of a transformer. The winding on the output side whether the transformer is of the step-up or step-down type.
2607	**TERTIARY WINDING.**	Of a transformer. An auxiliary winding used particularly in star-connected transformers for any of the following purposes :— (*a*) To protect the transformer and the system from excessive third-harmonic voltages. (*b*) To prevent telephone interference due to third harmonic currents in the lines and earth. (*c*) To stabilise the neutral point of the fundamental frequency voltages. (*d*) To supply a load, in addition to any of the above purposes.
2608	**TEASER WINDING.**	Of a power transformer. A winding, with or without tappings, supplementary to the main primary or secondary winding, and intended to be connected in series with or in opposition to the main winding for the purpose of adjusting the ratio of transformation.
2609	**TAP.** TAPPING.	A junction with a winding or conductor at some point between its extremities.
2610	**EMBEDDED TEMPERATURE DETECTOR.**	A resistance thermometer or thermo-couple built into a machine during construction for the purpose of measuring the temperature at an inaccessible point, under working conditions.

SUB-SECTION 27.

QUALIFYING TERMS APPLIED TO MACHINES AND TRANSFORMERS.

No.	TERM.	DEFINITION.
2701	**BIPOLAR.** TWO-POLE.	A qualifying term applied to a machine, to denote that the field magnet has only two poles.
2702	**MULTI-POLAR.**	A qualifying term applied to a machine to denote that the field magnet has more than two poles.
2703	**SEPARATELY-EXCITED.**	A qualifying term applied to a machine to denote that the field magnets are excited from a source other than the machine itself.
2704	**SELF-EXCITED.**	A qualifying term applied to a machine to denote that the field magnets are excited from the machine itself.
2705	**SHUNT-WOUND.** *Shunt.*	A qualifying term applied to a direct-current machine to denote that the field magnet windings are connected in shunt with the armature winding.
2706	**SERIES-WOUND.** *Series.*	A qualifying term applied to a direct-current machine to denote that the field magnet windings are connected in series with the armature winding.
2707	**COMPOUND-WOUND.** *Compound.*	A qualifying term applied to a direct-current machine, to denote that the field magnets have two windings —one a shunt winding and the other a series winding. When the electro-magnetic effects of the two windings are in the same direction, it is termed **CUMULATIVELY COMPOUND-WOUND,** or simply **COMPOUND-WOUND.** When the electro-magnetic effects of the two windings are opposed it is termed **DIFFERENTIALLY COMPOUND-WOUND,** COUNTER COMPOUND-WOUND or REVERSE COMPOUND-WOUND.
2708	**OVER-COMPOUNDED.**	A qualifying term applied— (*a*) To a compound-wound generator to denote that the series winding is so proportioned that the voltage increases with the load. (*b*) To a compound-wound motor to denote that the series winding is so proportioned that the speed decreases as the load increases.

No	TERM.	DEFINITION.
2709	**FLAT-COMPOUNDED.** LEVEL-COMPOUNDED.	A qualifying term applied to a compound-wound generator to denote that the series winding is so proportioned that the voltage remains the same at full load as at no-load.
2710	**OPEN.**	A qualifying term applied to a machine or transformer to denote that there is no restriction of the ventilation other than that necessitated by good mechanical construction.
2711	**PROTECTED.**	A qualifying term applied to a machine or transformer to denote that the internal rotating parts and the live parts are protected mechanically from accidental contact, while ventilation is not materially obstructed.
2712	**ENCLOSED-VENTILATED.**	A qualifying term applied to a machine or transformer to denote that the ventilating openings in the frame are protected with wire screen, expanded metal or other perforated covers. The term is usually applied only when the apertures are not more than $\frac{1}{4}$ sq. in. (3·3 sq. cm.) in area, and not less than $\frac{1}{50}$ sq. in. (0·13 sq. cm.) in area.
2713	**ENCLOSED SELF-COOLED.**	A qualifying term applied to a machine to denote that it is so enclosed as to prevent the circulation of air between the inside of the machine and the atmosphere, special provision being made for cooling the enclosed air by means of some device which forms part of, or is directly attached to the machine.
2714	**TOTALLY ENCLOSED.**	A qualifying term applied to a machine or transformer to denote that it is so far enclosed as to prevent circulation of air between the inside and outside of the case, but not sufficiently enclosed to be air-tight.
2715	**PIPE-VENTILATED.**	A qualifying term applied to a small machine to denote that the frame is so arranged that the ventilating air may be conveyed to and/or from the machine through pipes or ducts attached to the frame, the ventilation being maintained by the fanning action of the machine itself, assisted or not by a fan or fans directly attached to a rotating part.

No.	TERM.	DEFINITION.
2716	**DUCT-VENTILATED.**	A qualifying term applied to a large machine to denote that the frame is so arranged that the ventilating air may be conveyed through ducts connected thereto, the ventilation being maintained either by the fanning action of the machine itself or by a forced or induced draught.
2717	**FORCED DRAUGHT.**	A qualifying term applied to a pipe-ventilated or duct-ventilated machine to denote that the ventilating air is supplied under pressure by means external to the machine itself.
2718	**INDUCED DRAUGHT.**	A qualifying term applied to a pipe-ventilated or duct-ventilated machine to denote that the ventilating air is drawn through the machine by means external to the machine itself.
2719	**DRIP-PROOF.**	A qualifying term applied to a machine or transformer to denote that the frame is provided with openings for ventilation but is so protected as to exclude falling water or dirt.
2720	**WEATHER-PROOF.** SPLASH-PROOF.	A qualifying term applied to a machine or transformer to denote that it is so constructed that rain, snow and splashings are excluded.
2721	**FLAME-PROOF.** EXPLOSION-PROOF, *U.S.A.*	A qualifying term applied to a machine, transformer, switch or other piece of apparatus to denote that the containing case or other enclosure will withstand any explosion which may occur therein, within recognised limits of operation, and will prevent the transmission of flame capable of igniting an external inflammable mixture. A machine in which the slip-rings and brushes, alone, are enclosed in a flame-proof case should not be referred to as a flame-proof machine, but as one with a FLAME-PROOF SLIP-RING ENCLOSURE.
2722	**IMMERSIBLE.**	A qualifying term applied to a machine or transformer to denote that it can work when submerged under a considerable head of water for an indefinitely long period without detriment to its operation.

No.	TERM.	DEFINITION.
2723	**AIR-COOLED.**	A qualifying term applied to a machine or transformer to denote that no other medium than air is relied on for cooling the winding, core or other working parts.
2724	**OIL-COOLED.**	A qualifying term applied to a transformer to denote that immersion in oil is relied on to cool the windings, core or working parts.

SUB-SECTION 29.
MISCELLANEOUS TERMS APPLIED TO MACHINES AND TRANSFORMERS.

No	TERM.	DEFINITION.
2901	**EFFICIENCY.**	Of plant for converting energy from one form to another. The ratio (expressed as a percentage) of the energy output, available in the specific form and for the specific purpose required, to the energy input of the plant. In the case of heat or chemical energy, the datum from which this is evaluated must be specified. Symbol η.
2902	**DECLARED EFFICIENCY.**	The efficiency assigned by the maker under certain specified conditions.
2903	**I^2R LOSS.**	The sum of the losses represented by the product of the resistance of the conducting system in ohms, as measured by direct current, and the square of the current in amperes flowing therein.
2904	**EDDY CURRENT LOSS.**	The loss due to eddy currents in any part of a machine or transformer.
2905	**INHERENT REGULATION.**	(*a*) Of an A.C. generator. The change in voltage which occurs when the load is reduced from rated output (at rated power factor and rated voltage) to no-load, the speed and excitation current being maintained constant. It is usually expressed as a percentage of the voltage at rated output.

No.	TERM.	DEFINITION.
2905	**INHERENT REGULATION**—*continued.*	(*b*) Of a D.C. generator. The change in voltage which occurs when the load is reduced from rated output (at rated voltage) to no-load, at constant speed and without any external adjustment of the exciting circuits. It is usually expressed as a percentage of the voltage, at rated output of power or vice versa.
		(*c*) Of a machine for the conversion of energy from A.C. to D.C. The change in voltage on the output side which occurs when the load is reduced from rated output (at rated voltage) to no load at rated primary A.C. voltage and frequency, and without any external adjustment of the exciting circuit. It is usually expressed as a percentage of the voltage at rated output.
		(*d*) Of a machine for the conversion of energy from D.C. to A.C. The change in voltage on the output side which occurs when the load is reduced from rated output (at rated voltage and power factor) to no load at constant D.C. voltage, and without any external adjustment of the exciting circuit. It is usually expressed as a percentage of the voltage at rated output.
		(*e*) Of a constant voltage transformer. The change in secondary voltage which occurs when the load is reduced from rated output (at rated power-factor and rated voltage) to no-load, the primary impressed terminal voltage being maintained constant. It is usually expressed as a percentage of the no-load secondary voltage.
2906	**SYNCHRONOUS SPEED.**	Of an A.C. machine. The speed of rotation, which corresponds to the rotation or pulsation of the magnetic flux.
2907	**SLIP.**	Of an induction motor. The ratio of the difference between the speed of rotation corresponding to synchronism and the actual speed of the revolving part, to the speed of synchronism, the difference being generally expressed as a percentage of the latter.

No.	TERM.	DEFINITION.
2908	**RESISTANCE DROP.**	The voltage lost at any given output due to the internal resistance. It is usually expressed as a percentage of the terminal voltage. In the case of a transformer, the resistance drop is the sum of the resistance drop in the secondary and the resistance drop in the primary reduced to secondary terms. It is usually expressed as a percentage of the no-load secondary voltage.
2909	**REACTANCE DROP.**	The voltage lost at any given output due to the internal reactance. It is usually expressed as a percentage of the terminal voltage. In the case of a transformer, the reactance drop is the sum of the reactance drop in the secondary and the reactance drop in the primary reduced to secondary terms. It is usually expressed as a percentage of the no-load secondary voltage.
2910	**IMPEDANCE DROP.**	The voltage lost at any given output due to the internal impedance. It is usually expressed as a percentage of the terminal voltage. In the case of a transformer, the impedance drop is the sum of the impedance drop in the secondary and the impedance drop in the primary reduced to secondary terms. It is usually expressed as a percentage of the no-load secondary voltage.
2911	**RATIO.**	Of a transformer or of a transformation. The ratio of the primary terminal voltage to the secondary terminal voltage, or in the case of a current transformer, of the primary current to the secondary current. The load condition should be specified. In the case of a power transformer, the ratio is usually given at no-load; in the case of an instrument transformer, at rated load.
2912	**TURNS RATIO.**	Of a transformer. The ratio of the number of primary to the number of secondary turns on the same magnetic circuit.

No.	TERM.	DEFINITION.
2913	**BURDEN.** LOAD, *deprecated.* SECONDARY LOAD, *deprecated.*	Of an instrument transformer. The quality of the external circuit connected to the secondary terminals expressed either (i) in volt-amperes, or (ii) as an impedance in ohms, or (iii) as a resistance in ohms and an inductance in henries.
2914	**ARMATURE REACTION.**	The magnetic effects produced by the magnetomotive forces set up by the currents in the armature windings.
2915	**NEUTRAL ZONE.**	Of a commutating machine. The zone of the commutator in which, when the machine is running at no-load, the voltage between two consecutive bars is sensibly zero.
2916	**NEUTRAL POINT.**	Of a commutating machine. The central point of the neutral zone.
2917	**BRUSH SHIFT.** BRUSH LEAD.	Of a commutating machine. The amount by which the brushes are displaced from the neutral point; it is preferably expressed as a distance measured along the commutator surface, but sometimes as a number of commutator bars. If the brushes are displaced from the neutral point, in the direction of rotation, they are said to have a **FORWARD SHIFT** (FORWARD LEAD); if displaced in the opposite direction they are said to have a **BACKWARD SHIFT** (BACKWARD LEAD).
2918	**STAR POINT.**	The point at which the windings of the several phases of a star-connected polyphase machine, transformer or other piece of apparatus are connected together. If the windings are symmetrical, the Star Point is the point to which the neutral lead, if any, is connected. In a 3-phase system the Star Point is often known as the **Y POINT.**
2919	**ZIG-ZAG CONNECTION.** ISLE-OF-MAN CONNECTION. INTERCONNECTED-STAR CONNECTION.	Of transformer or reactor windings. A symmetrical 3-phase star connection of six windings, situated in pairs upon a 3-limbed core or upon three separate cores, and so connected that each leg of the star consists of two windings in series, which are situated on different cores and are the seats of E.M.F's of equal magnitude, but differing in phase by 120°. This connection is used for obtaining an artificial neutral point in a 3-phase system.

No.	TERM.	DEFINITION.
2920	**SCOTT CONNECTION.** STEINMETZ CONNECTION.	Of transformers. A method of interconnecting two transformers to enable them to be used for transforming from 2-phase to 3-phase or *vice versa*. On the 3-phase side, one terminal of one transformer (sometimes known as the **TEASER TRANSFORMER**) is connected to the mid-point of the winding of the second transformer (sometimes known as the **MAIN TRANSFORMER**). The remaining terminal forms one of the 3-phase line terminals and the two terminals of the second transformer form the other two line terminals on the 3-phase side. On the 2-phase side the two transformer windings may be connected at one point or not, as desired.
2921	**HUNTING.**	Of a machine. An oscillation about a state of uniform rotation which is maintained to such an extent as to cause objectionable results.
2922	**MAGNETIC BRAKING.**	A system in which a brake is applied to a motor or moving system by means of an electro-magnet.
2923	**ELECTRIC BRAKING.**	A system in which a brake is applied to an electric motor by so connecting the armature as to cause it to act as a generator.
2924	**RHEOSTATIC BRAKING.**	A system of electric braking in which the motor is connected as a generator, the energy being dissipated in a rheostat, thus retarding the motor.
2925	**REGENERATIVE BRAKING.**	A system of electric braking in which energy is returned to the supply system, thus exerting a retarding force.
2926	**FORMER.**	A tool for forming a coil or winding into a particular shape.

SECTION 3.

SWITCHGEAR AND CONTROL GEAR.

Sub-Section 31. Circuit Opening and Closing Devices.

32. Startors. *See* Note (1).

33. Controllers. *See* Note (2).

34. Regulators. *See* Notes (2) and (3).

35. Qualifying Terms applied to Switchgear and Control Gear.

36. Miscellaneous Terms.

NOTE.—In classifying Startors, Controllers, and Regulators, the following distinctions have been drawn :—

(1) **Startor.** A device for starting a motor, but not adapted for sustained use in any position intermediate between the " off " position and the " full-on " position.

(2) **Controller.** A device for controlling the speed of a motor at will, and usually suitable for sustained operation in certain intermediate positions.

(3) **Regulator.** A device for use with a machine, transformer or the like, for maintaining the current, voltage, speed, etc., at a predetermined value, or for adjusting it at will to any desired value.

SUB-SECTION 31.

CIRCUIT OPENING AND CLOSING DEVICES.

No.	TERM.	DEFINITION.
3101	**SWITCH.**	A device for opening or closing an electrical circuit.
3102	**CONTACTOR.**	A switch which is suitable for frequently closing and opening an electric circuit when carrying current, and which is operated by electro-magnetic or electro-pneumatic means.
3103	**CIRCUIT-BREAKER.** CUT-OUT (*deprecated*).	A switch for opening, automatically unless otherwise specified, a circuit under abnormal conditions such as those of overload.
3104	**SLOW-BREAK SWITCH.**	A switch in which the speed of break is dependent upon the operator.

No.	TERM.	DEFINITION.
3105	**QUICK-BREAK SWITCH.**	A switch in which a quick break is ensured independently of the operator.
3106	**KNIFE SWITCH.**	A switch comprising a current-carrying hinged blade, which moves in its own plane, and which enters or embraces the circuit contacts.
3107	**TANDEM KNIFE SWITCH.**	A multi-pole knife-switch in which the switch blades on the several poles are arranged substantially in one plane.
3108	**LAMINATED BRUSH-SWITCH.**	A switch in which one member of the contact is laminated.
3109	**LINKED SWITCHES.** COUPLED SWITCHES.	Switches linked together mechanically so as to operate simultaneously, or in definite sequence.
3110	**AUXILIARY SWITCH.**	A switch working in conjunction with, and actuated by, another switch, circuit-breaker, contactor or the like, and serving to operate auxiliary devices such as trip coils or alarm bells.
3111	**MASTER SWITCH.**	A switch which is not included in the main circuit but which operates switches or apparatus therein, by means of an auxiliary circuit.
3112	**ISOLATOR** ISOLATING SWITCH. DISCONNECTING SWITCH. *U.S.A.*	A switch suitable for disconnecting a circuit under no-load conditions only.
3113	**ISOLATING LINK.**	A link suitable for disconnecting a circuit under no-load conditions only.
3114	**SECTION SWITCH.**	A switch for dividing circuits or conductors into sections.
3115	**REVERSING SWITCH.**	A switch for reversing the connections of a portion of an electric circuit.
3116	**CHANGE-OVER SWITCH.**	A switch for changing a circuit from one system of connections to another system of connections.
3117	**LIMIT SWITCH.**	A switch for preventing over-travel and so arranged as to be operated mechanically by the motion of the mechanism which it controls.
3118	**TIME SWITCH.**	A switch, embodying a clock mechanism, which may be set to open or close a circuit at a predetermined time or times.

No.	TERM.	DEFINITION.
3119	**CURRENT-LIMITER.** *Limiter.* DEMAND-LIMITER.	A device for giving warning or breaking the circuit when a predetermined current is exceeded.
3120	**FUSE-SWITCH.**	A switch the moving part of which carries one or more fuse links.
3121	**SWITCH-FUSE.**	A cut-out embodying a removable fuse carrier which may be employed as a switch.
3122	**CUT-OUT.** *Ab'n. for Fusible Cut-out.*	A device for protecting apparatus from damage by overload, by opening a circuit through the fusion of a specially designed part thereof. The term comprises all the parts which, together with their mounting, base and containing case or cover (if any) form the complete device. The term was at one time employed as a synonym for Circuit-Breaker, but is preferably confined to a fusible device.
3123	**FUSE-LINK.** *Fuse.* FUSE-ELEMENT.	That part of a cut-out which is designed to melt and thus open the circuit. It comprises the fusible metal, with attached contacts, if any.
3124	**FUSE CARRIER.** FUSE HOLDER.	A removable holder designed for insertion between the circuit contacts of a cut-out, and serving to carry a fuse link or cartridge fuse.
3125	**CARTRIDGE FUSE.**	A form of fuse carrier in which the fuse link is contained in an envelope in the form of a tube of insulating material carrying contacts and having enclosed ends. A cartridge fuse may itself be inserted in some other form of fuse carrier.
3126	**TOTALLY-ENCLOSED CARTRIDGE FUSE.**	A cartridge fuse the ends of which are completely closed. It may or may not be filled with an arc-quenching material.
3127	**VENTILATED CARTRIDGE FUSE.**	A cartridge fuse in which provision is made for the escape of gas. It may or may not be filled with an arc-quenching material.

No.	TERM.	DEFINITION.
3128	**SCREW-PLUG CARTRIDGE FUSE.**	A form of cartridge fuse having contacts, one in the form of a stud, and the other in the form of a coarse screw-thread.
3129	**SCREW-PLUG CARTRIDGE FUSE CARRIER.**	A form of fuse carrier adapted to carry a screw-plug cartridge fuse.
3130	**PLAIN CUT-OUT.**	A cut-out in which, apart from any external containing case, the fuse link is fully exposed.
3131	**SEMI-ENCLOSED CUT-OUT.**	A cut-out in which, apart from any external containing case, the fuse link is partly surrounded by a tube or the like.
3132	**PROTECTED CUT-OUT.**	A cut-out in which, apart from any external containing case, provision is made for protecting the operator from the effects of the melting of the fuse link.
3133	**LIQUID-QUENCHED CUT-OUT.**	A cut-out in which liquid is employed for quenching the arc.
3134	**OIL-QUENCHED CUT-OUT.**	A liquid-quenched cut-out in which the liquid employed is oil.
3135	**SEMI-IMMERSED LIQUID-QUENCHED CUT-OUT.**	A liquid-quenched cut-out in which the fuse link is above the surface of the liquid before fusing, but is drawn beneath it during or after fusion.
3136	**IMMERSED LIQUID-QUENCHED CUT-OUT.**	A liquid-quenched cut-out in which the fuse-link is always completely immersed in the quenching liquid.
3137	**CIRCUIT TERMINAL.**	Of a cut-out. The terminal by means of which connection is made with the external circuit.
3138	**CIRCUIT CONTACT.**	Of a cut-out. The contact, connected to a circuit terminal, with which the contact of a fuse-link or fuse carrier engages.
3139	**CONTACT.**	Of a fuse-link or fuse carrier. The metallic portion by means of which external contact is made.

No.	TERM.	DEFINITION.
3140	**CONTACT EXTENSION.**	Of a fuse carrier. The continuation of the fuse carrier contact by means of which internal connection is made.
3141	**BASE.**	Of a cut-out. The fixed portion which carries the circuit contacts.
3142	**RELAY.**	A device by means of which one circuit is indirectly controlled by a change in the same or another circuit.
3143	**PROTECTIVE RELAY.**	A relay serving to protect electric plant in the event of the occurrence of abnormal conditions therein by isolating the faulty member automatically.

SUB-SECTION 32. STARTORS.

No.	TERM.	DEFINITION.
3201	**MOTOR STARTOR.** *Startor.*	A device for starting and accelerating a motor to normal speed but not adapted for sustained use in any position intermediate between the "off" position and the "full-on" position.
3202	**AUTOMATIC MOTOR STARTOR.**	A motor startor which, when an initial motion has been given by external means, automatically completes the operation of starting. This term is sometimes applied to a startor which returns automatically to the starting position should the current be interrupted, but this use of the term is deprecated.
3203	**AUTO-TRANSFORMER STARTOR.** COMPENSATOR STARTOR.	A motor startor for A.C. motors comprising an auto-transformer and a switch, so arranged that, when the switch is on the intermediate or starting contact or contacts, a reduced voltage is applied to the motor terminals.
3204	**RHEOSTATIC STARTOR.** STARTING RHEOSTAT.	A motor startor comprising a resistor and means for readily adjusting the amount of resistance in circuit.
3205	**FACE-PLATE STARTOR.**	A motor startor in which the contact parts are arranged upon a plane surface.

No.	TERM.	DEFINITION.
3206	**DRUM STARTOR.**	A motor startor, in which the moving contact parts are arranged upon a cylindrical surface. The term may or may not include the resistor.
3207	**MULTIPLE-SWITCH STARTOR.**	A motor startor in which each contact consists of a separate hand-operated switch.
3208	**LIQUID STARTOR.**	A rheostatic startor in which the resistance material is in the form of a liquid.
3209	**CONTACTOR STARTOR.**	A motor startor in which each main contact or set of contacts is made by a separate contactor.
3210	**SWITCH STARTOR.**	A motor startor consisting of a switch which provides different connections for the windings in the starting and running positions, respectively.
3211	**SERIES-PARALLEL STARTOR.**	For a two-phase induction motor. A switch startor arranged so that in the starting position the two halves of the winding in each phase of the motor are in series and in the running position the two halves are in parallel.
3212	**Y-DELTA STARTOR.** STAR-DELTA STARTOR.	For a three-phase induction motor. A switch startor arranged so that in the starting position the stator windings are connected in Y, and in the running position they are connected in delta.

SUB-SECTION 33. CONTROLLERS.

No.	TERM.	DEFINITION.
3301	**CONTROLLER.**	A device having several steps or positions, sometimes known as **NOTCHES**, and used with or without resistors, for adjusting the speed of a motor or motors; it may or may not be used for starting. The device does not usually include any self-contained resistor, unless this is specifically stated.

No.	TERM.	DEFINITION.
3302	**RHEOSTATIC CONTROLLER.**	A controller by means of which more or less resistance can be introduced into a circuit.
3303	**LIQUID CONTROLLER.**	A rheostatic controller in which the resistor takes the form of a liquid.
3304	**SERIES-PARALLEL CONTROLLER.**	A controller by means of which the windings of two or more motors can be connected in series or parallel, at will.
3305	**BRAKING CONTROLLER.**	A controller by means of which electric braking may be applied to an electric motor.
3306	**RHEOSTATIC BRAKING CONTROLLER.**	A braking controller in which the connections for braking are such that the armature is connected across the field and rheostat, which are disconnected from the line.
3307	**POTENTIOMETER BRAKING CONTROLLER.**	A braking controller in which the field and rheostat are connected to the line and the armature is connected across the field and varying parts of the rheostat.
3308	**FACE-PLATE CONTROLLER.**	A controller in which the contact parts are arranged upon a plane surface.
3309	**DRUM CONTROLLER.** BARREL CONTROLLER.	A controller in which the moving contact parts are arranged upon a cylindrical surface.
3310	**CONTACTOR CONTROLLER.**	A controller in which the contacts for the main current are made by means of contactors.
3311	**MULTIPLE-SWITCH CONTROLLER.**	A controller in which separate hand-operated switches or circuit-breakers are arranged to operate in a definite order, for the purpose of inserting resistors or of changing the connections, in order to vary the speed of a motor.
3312	**CHANGE-OVER SWITCH CONTROLLER.**	A controller consisting of a multiple contact switch capable of varying the circuit connections by the movement of one or more blades.

No.	TERM.	DEFINITION.
3313	**MASTER CONTROLLER.** PILOT-CONTROLLER.	A controller which is not included in the main circuit of the controlled motor but which operates other controllers or contactors by means of an auxiliary circuit.
3314	**MULTIPLE-UNIT CONTROLLER.**	A master controller used on the multiple-unit system of control.

SUB-SECTION 34. REGULATORS.

No.	TERM.	DEFINITION.
3401	**FIELD RHEOSTAT.** FIELD REGULATOR.	A rheostat arranged for varying, at will, the current in the field winding of a machine.
3402	**SHUNT FIELD RHEOSTAT.**	A field rheostat suitable for connection in series with the shunt winding of machines.
3403	**POTENTIOMETER-TYPE FIELD-RHEOSTAT.**	A field rheostat in which the resistor is suitable for connection across the source of supply, and means are provided whereby the field winding can be connected between various points on the resistor in order to vary the potential across the field winding, part of the resistor being in parallel with the field winding and part in series therewith.
3404	**REVERSIBLE POTENTIOMETER-TYPE FIELD RHEOSTAT.**	A potentiometer-type rheostat in which the polarity of the field winding may be reversed.
3405	**FIELD DIVERTOR RHEOSTAT.**	A field rheostat suitable for connection in parallel with a field winding.
3406	**BALANCER FIELD RHEOSTAT.**	A field rheostat in which the resistor is permanently connected between the neutral terminals of the shunt field windings of a balancer, means being provided whereby the neutral can be connected to various points of the resistor.

No.	TERM.	DEFINITION.
3407	**SPEED-ADJUSTING RHEOSTAT.** SPEED-REGULATING RHEOSTAT.	A rheostat arranged for varying, at will, the speed of a motor and suitable for continuous operation in any position.
3408	**VOLTAGE REGULATOR.**	A device for varying, at will, the voltage of a circuit or for automatically maintaining it at or near a prescribed value.
3409	**SWITCH-TYPE VOLTAGE REGULATOR.** CONTACT VOLTAGE REGULATOR *U.S.A.*	A voltage regulator having a winding in shunt and a winding in series with the circuit, so arranged that the voltage ratio of transformation is variable, at will, by adjusting the number of turns in one or both windings.
3410	**MAGNETO VOLTAGE REGULATOR.**	A voltage regulator having two stationary windings, one in shunt and one in series with the circuit, and a movable magnetic core by means of which the relative electro-magnetic induction between the windings is adjustable.
3411	**INDUCTION VOLTAGE REGULATOR.**	A voltage regulator having a winding in shunt and a winding in series with the circuit, so arranged that the relative positions of the shunt and series windings are adjustable.

SUB-SECTION 35.

QUALIFYING TERMS APPLIED TO SWITCHGEAR AND CONTROL GEAR.

No.	TERM.	DEFINITION.
3501	**SINGLE-POLE.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it is suitable for closing or opening a circuit on one pole only.
3502	**DOUBLE-POLE.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it is suitable for closing or opening a circuit on two poles simultaneously, or for closing or opening two separate circuits, simultaneously.
3503	**TRIPLE-POLE.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it is suitable for closing or opening a circuit on three poles simultaneously, or for closing or opening three separate circuits, simultaneously.
3504	**MULTI-POLE.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it is suitable for closing or opening a circuit on two or more poles simultaneously, or for closing or opening two or more separate circuits, simultaneously.
3505	**ONE-WAY.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it provides a single path for the current.
3506	**TWO-WAY.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it provides two alternative paths for the current.
3507	**MULTI-WAY.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it provides two or more alternative paths for the current.
3508	**SINGLE-THROW.**	A synonym for One-way, when applied to a knife switch or the like, and used in contradistinction to double-throw.

No.	TERM.	DEFINITION.
3509	**DOUBLE-THROW.** THROW-OVER.	A synonym for Two-way, when applied to a knife switch or the like, in which the change of connections is made by "throwing over" the handle.
3510	**SINGLE-BREAK.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it is one in which the circuit is closed or opened at one point only on each pole or phase.
3511	**DOUBLE-BREAK.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it is one in which the circuit is closed or opened at two points, simultaneously, on each pole or phase.
3512	**MULTI-BREAK.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote that it is one in which the circuit is closed or opened at two or more points simultaneously on each pole or phase.
3513	**AIR-BREAK.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote one in which the circuit is opened in air.
3514	**OIL-BREAK.**	A qualifying term applied to a switch, circuit-breaker or similar apparatus to denote one in which the circuit is opened under oil.
3515	**FIXED HANDLE.**	A qualifying term applied to a circuit-breaker, startor or similar apparatus to denote one which cannot open automatically while the operating handle is held.
3516	**FREE HANDLE.**	A qualifying term applied to a circuit-breaker, startor or similar apparatus to denote one which can open automatically while the operating handle is held.
3517	**OVER-CURRENT.** OVERLOAD. MAXIMUM CURRENT.	A qualifying term applied to a circuit-breaker, relay or other automatic device to denote one intended to operate when the current exceeds a prescribed value.

No.	TERM.	DEFINITION.
3518	**OVER-VOLTAGE.** MAXIMUM VOLTAGE.	A qualifying term applied to a circuit-breaker, relay or other automatic device to denote one intended to operate when the voltage exceeds a prescribed value.
3519	**UNDER-CURRENT.** MINIMUM CURRENT. UNDERLOAD.	A qualifying term applied to a circuit-breaker, relay or other automatic device to denote one intended to operate when the current falls below a prescribed value.
3520	**UNDER-VOLTAGE.** NO-VOLTAGE. MINIMUM VOLTAGE LOW-VOLTAGE.	A qualifying term applied to a circuit-breaker, relay or other automatic device to denote one intended to operate when the voltage falls below a prescribed value.
3521	**DIRECTIONAL.** REVERSE.	A qualifying term applied to a circuit-breaker, relay or other automatic device to denote one the operation of which depends upon the direction of the current, power or other quantity.
3522	**OPEN.**	A qualifying term applied to apparatus to denote that the current-carrying parts are not provided with a protecting cover.
3523	**PROTECTED.**	A qualifying term applied to :— (*a*) Apparatus, to denote that means are provided to prevent accidental contact with the current-carrying parts. (*b*) A cut-out, to denote one in which, apart from any external containing case, provision is made for protecting the operator from the effects of the melting of the fuse-link.
3524	**ENCLOSED-VENTILATED.** SEMI-ENCLOSED, *U.S.A.*	A qualifying term applied to apparatus to denote that it is provided with a ventilated protecting cover.
3525	**TOTALLY ENCLOSED.**	A qualifying term applied to apparatus to denote that it is so enclosed as to prevent circulation of air between the inside and outside of the case, but not sufficiently enclosed to be termed air-tight.

No.	TERM.	DEFINITION.
3526	**DRIP-PROOF.**	A qualifying term applied to apparatus to denote that it has a cover provided with openings for ventilation, so protected as to exclude falling water or dirt.
3527	**WEATHER-PROOF.** SPLASH-PROOF.	A qualifying term applied to apparatus to denote that it is so constructed that, when installed, rain, snow and splashings are excluded.
3528	**IMMERSIBLE.**	A qualifying term applied to apparatus to denote that it can work when submerged under a considerable head of water for an indefinitely long period without detriment to its operation.
3529	**FLAME-PROOF.** EXPLOSION-PROOF, *U.S.A.*	A qualifying term applied to apparatus to denote that the containing case or other enclosure will withstand any explosion which may occur therein, within recognised limits of operation, and will prevent the transmission of flame capable of igniting an external inflammable mixture.
3530	**OIL-IMMERSED.**	A qualifying term applied to apparatus to denote that the principal working parts are immersed in oil.
3531	**METAL-CLAD.**	A qualifying term applied to apparatus to denote that the conducting parts are entirely enclosed in a metal casing.
3532	**IRON-CLAD.**	A qualifying term applied to apparatus to denote that the conducting parts are entirely enclosed in an iron casing.
3533	**COMPOUND-FILLED.**	A qualifying term applied to metal-clad apparatus in which the space between the conducting parts and the metal casing is filled with an insulating compound.

SUB-SECTION 39. MISCELLANEOUS TERMS.

No.	TERM.	DEFINITION.
3901	**SWITCHGEAR.**	Apparatus for controlling the distribution of electrical energy, or for controlling or protecting electrical circuits, machines, transformers or other apparatus.
3902	**SWITCHGEAR UNIT.**	An assemblage of switchgear forming a coherent whole and designed for a particular service.
3903	**SWITCHBOARD.**	An assemblage of switchgear, fixed and connected, with or without meters.
3904	**TRUCK-TYPE SWITCHBOARD.**	A switchboard embodying sections each of which is mounted on wheels in such a way that it may be completely disconnected from the remainder and wheeled away for adjustment or repair.
3905	**CELLULAR SWITCHBOARD.**	A switchboard constructed with a number of separate compartments in which the apparatus is located.
3906	**SKELETON-TYPE SWITCHBOARD.** FRAME-TYPE SWITCHBOARD.	A switchboard in which the apparatus is mounted directly on a metallic framework.
3907	**SWITCHBOARD CELL.**	A compartment of a cellular switchboard.
3908	**DISTRIBUTION BOARD.** DISTRIBUTING BOARD. DISTRIBUTION BOX.	An assembly of small busbars with or without disconnecting links, switches, fuses or the like for connecting, controlling or protecting, as the case may be, a number of branch circuits fed from a main circuit.
3909	**DISTRIBUTION FUSE-BOARD.** CUT-OUT BOARD. SECTION FUSE-BOARD.	A distribution board comprising a fuse or fuses for each of the branch circuits.
3910	**DISTRIBUTION SWITCHBOARD.**	A distribution board comprising a fuse or fuses, with a switch or switches for each of the branch circuits.
3911	**SLAB.**	A support having a continuous flat surface designed to carry switchgear. The term does not include the switchgear which may be mounted thereon.
3912	**SWITCHBOARD PANEL.** *Panel.* CONTROL PANEL.	An assemblage of one or more slabs carrying switching, controlling or measuring apparatus.
3913	**REMOTE CONTROL.**	The control of apparatus or plant from a distance, *e.g.*, the operation of switches from a switchboard situated at a distance from them.

No.	TERM.	DEFINITION.
3914	**CONTROL BOARD.**	A switchboard comprising switches with or without meters, relays and accessory apparatus, for the control of a circuit from a distance.
3915	**CONTROL PANEL.**	An assemblage of one or more slabs carrying switches, with or without meters, relays or accessory apparatus, for the control of a circuit from a distance.
3916	**BUS-BAR.** *Ab'n. for Omnibus Bar.*	A conductor forming a common junction between two or more circuits, each separately connected thereto, *e.g.*, a number of generators on the one side and the feeders which they supply on the other.
3917	**BLADE.**	Of a switch. The moving part which makes contact with the contact jaw in closing the circuit.
3918	**CONTACT JAW.**	Of a switch. A fixed part with which a blade makes contact in closing the circuit.
3919	**FLASH-GUARD.** BARRIER.	A barrier or shield of insulating material provided in connection with electrical apparatus for the purpose of preventing damage to the apparatus or the operator through the spreading of an arc.
3920	**INTERLOCK.**	An electrical or mechanical device serving to make the operation of one piece of apparatus dependent upon certain predetermined conditions being fulfilled by another.
3921	**TRIPPING DEVICE.** RELEASE.	A mechanical device by means of which circuit-interrupting apparatus is operated or "tripped." The device may be operated either by hand, or automatically by means of a trip coil.
3922	**TRIP COIL.**	The coil serving to operate a tripping device.
3923	**OVER-CURRENT RELEASE.** OVERLOAD RELEASE	A tripping device operated by a trip coil and acting when the current exceeds a prescribed value.
3924	**UNDER-VOLTAGE RELEASE.** NO-VOLT RELEASE. LOW-VOLT RELEASE.	A tripping device operated by a trip coil and acting when the voltage falls below a prescribed value.
3925	**INSTANTANEOUS.**	A qualifying term applied to a circuit-breaker, relay or other automatic device to denote one in which the operation is not purposely delayed.

No.	TERM.	DEFINITION.
3926	**TIME LAG.** TIME LIMIT. TIME ELEMENT. DELAYED ACTION.	A feature of a circuit-breaker, relay or other automatic device whereby the operation is delayed for a prescribed time.
3927	**DEFINITE TIME LAG.** FIXED, CONSTANT *or* INDEPENDENT TIME LAG.	A time lag which is independent of the magnitude of the current or other quantity causing operation.
3928	**INVERSE TIME LAG.** INVERSE TIME LIMIT. INVERSE TIME ELEMENT.	A time lag which is inversely dependent on the magnitude of the current or other quantity causing operation.
3929	**PROTECTIVE DEVICE.**	A device serving to protect electric plant in the event of the occurrence of abnormal conditions therein, by isolating the faulty member automatically.
3930	**OVER-VOLTAGE PROTECTIVE DEVICE.** TRANSIENT PROTECTIVE DEVICE.	A protective device affording protection from damage due to abnormal transient phenomena, usually by reflection or conduction to earth.
3931	**ARRESTOR.** LIGHTNING ARRESTOR. LIGHTNING PROTECTOR. SURGE GAP. OVER-VOLTAGE SUPPRESSOR. EXCESS-VOLTAGE SUPPRESSOR.	An over-voltage protective device affording protection from the effects of over-voltage, by the provision of an alternative discharge path.
3932	**HORN GAP.**	A spark gap of gradually increasing width serving to attenuate and break an arc formed across it. It is largely used in connection with over-voltage protective devices.
3933	**SURGE ABSORBER.**	A device connected in parallel with electrical plant and serving to protect it from the effects of high frequency or steep fronted surges, by the provision of an alternative discharge path in which energy is absorbed.
3934	**LINE CHOKING COIL.** SCREENING REACTOR.	An inductor connected in series with electrical plant and serving to protect it from the effects of high-frequency or steep-fronted surges by absorption or reflection.
3935	**CURRENT-LIMITING INDUCTOR.** CURRENT-LIMITING REACTOR.	An inductor inserted in a circuit for the purpose of limiting the current to a prescribed value if a fault occurs.

No.	TERM.	DEFINITION.
3936	**EARTHING INDUCTOR.** EARTHING REACTANCE.	An inductor through which an A.C. system is earthed and which serves either to limit the current which flows in the event of an earth fault, or to neutralise the leading current which flows through an earth fault owing to the capacitance of the system.
3937	**EARTHING RESISTOR.** EARTHING RESISTANCE.	A resistor through which a system is earthed and which serves to limit the current flowing in the event of an earth fault.
3938	**OPEN, TO.**	To manipulate a switch, circuit-breaker or the like in such a manner as to bring its movable parts into a position which does not permit the passage of an electric current.
3939	**CLOSE, TO.**	To manipulate a switch, circuit-breaker or the like in such a manner as to bring the movable parts thereof into a position which permits the passage of an electric current.
3940	**BREAK.**	Of a switch. The shortest distance between the contacts when in the fully opened position. If the switch is multi-break, the shortest total distance, measured on one pole, is taken.
3941	**ARCING CONTACT.** AUXILIARY-BREAK CONTACT. SPARKING CONTACT. SECONDARY CONTACT.	Of a switch or circuit-breaker. A contact which opens after, and closes before, the main contacts and is intended to protect the latter from injury.
3942	**MAGNETIC BLOW-OUT.**	A device applicable to circuit-opening apparatus and comprising a magnetic field which assists in breaking the arc formed on opening the circuit.
3943	**BLOW, TO.**	Of a fuse-link. To melt under the influence of the heat generated by the current.
3944	**BLOWING CURRENT.**	Of a fuse-link. The actual current at which rupture of the metallic circuit occurs.

No.	TERM.	DEFINITION.
3945	**RATED BLOWING CURRENT.**	Of a fuse-link. The current stated by the maker as that at which rupture of the metallic circuit will occur, under prescribed conditions.
3946	**MINIMUM BLOWING CURRENT.**	Of a fuse-link. The minimum current which will cause rupture of the metallic circuit, under prescribed conditions.
3947	**CURRENT-CARRYING CAPACITY.**	Of a switch, circuit-breaker, or similar apparatus. The maximum current which it is capable of carrying under prescribed conditions.
3948	**RATED CURRENT-CARRYING CAPACITY.** RATED CARRYING CURRENT, *deprecated.*	Of a switch, circuit-breaker, or similar apparatus. The current assigned by the maker as the maximum which it is capable of carrying under prescribed conditions.
3949	**RUPTURING CAPACITY.**	Of a switch, circuit-breaker, or similar apparatus. The maximum current, power or volt-amperes which it is capable of interrupting under prescribed conditions.
3950	**RATED RUPTURING CAPACITY.**	Of a switch, circuit-breaker, or similar apparatus. The current, power or volt-amperes assigned by the maker as the maximum which it is capable of interrupting under prescribed conditions.
3951	**RATED VOLTAGE.**	Of a switch, circuit-breaker, cut-out or any components thereof. The voltage stated by the maker as the maximum voltage of the circuit on which it is intended to be used.
3952	**NUMBER OF POLES.**	Of a switch or the like. The number of different circuits which it serves to open or close simultaneously.
3953	**NUMBER OF WAYS.**	Of a switch or the like. The number of alternative paths which are provided on any pole or phase.

SECTION 4.

METERS AND MEASUREMENT.

Sub-Section 41. General.
42. Indicating & Graphic Meters.
43. Integrating Meters.

SUB-SECTION 41. GENERAL.

No.	TERM.	DEFINITION.
4101	**METER.**	An instrument serving to indicate, to integrate or to record graphically, one or more of the electrical conditions of a circuit. In the absence of a prefix, the term has been commonly applied to an integrating, rather than to an indicating or graphic instrument.
4102	**MOVING-IRON METER.** ELECTRO-MAGNETIC METER. SOFT-IRON METER.	A meter the operation of which depends on the force exerted by a fixed coil carrying a current, upon a movable piece of soft iron.
4103	**MOVING-COIL METER.** *Ab'n. for Permanent-Magnet Moving-Coil Meter.*	A D.C. meter the operation of which depends on the torque exerted by a fixed permanent magnet on a movable coil carrying a current.
4104	**HOT-WIRE METER.** THERMAL METER.	A meter the operation of which depends upon the elongation by heat of a wire or strip carrying a current.
4105	**THERMAL METER.** THERMO-JUNCTION METER.	(*a*) A meter the operation of which depends upon the heating of a thermo-couple by a current. (*b*) A synonym for HOT-WIRE METER.
4106	**INDUCTION METER.**	An A.C. meter the operation of which depends upon the interaction between currents induced in a conducting member, usually a disc, and an A.C. electro-magnet.
4107	**ELECTRODYNAMIC METER.** ELECTRO-DYNAMOMETER. DYNAMOMETER.	A meter the action of which depends upon the electro-magnetic forces exerted between two or more coils, *e.g.*, Electrodynamic Watt-meter.

No.	TERM.	DEFINITION.
4108	**PYROMETER.**	An instrument for measuring temperature.
4109	**RESISTANCE THERMOMETER.** RESISTANCE PYROMETER.	An instrument for measuring temperature, which depends for its operation upon the variation of electrical resistance with temperature.
4110	**THERMO-COUPLE THERMOMETER.** THERMO-COUPLE PYROMETER.	An instrument for measuring temperature, which depends for its operation upon the variation with temperature of the E.M.F. produced in a thermo-couple.
4111	**SHUNT.**	Of an instrument. A resistor of low value used for the measurement of current by means of a potentiometer or of an ammeter through which only a fraction of the total current passes.
4112	**SHUNTED METER.**	A meter in which part of the current to be measured is passed through a shunt.
4113	**VOLT CIRCUIT.** PRESSURE CIRCUIT. SHUNT CIRCUIT. POTENTIAL CIRCUIT.	That circuit of a meter which is connected between the poles of the circuit under test, whether directly or through resistors, transformers, condensers, etc.
4114	**CURRENT CIRCUIT.** SERIES CIRCUIT. MAIN CIRCUIT.	That circuit of a meter through which flows the current under test, or one presumed to be proportional to it.
4115	**MAGNETOMETER.**	An instrument for measuring the magnitude and direction of magnetic force.
4116	**TORQUE METER.** DYNAMOMETER.	A piece of apparatus for measuring the torque exerted by the rotating member of a piece of mechanism.
4117	**SLIDE WIRE.**	A wire of uniform resistance on which a sliding contact makes connection at any desired point.
4118	**POTENTIOMETER.**	An instrument for measuring electrical quantities, depending in principle on balancing an unknown potential difference against a known potential difference, obtained by the passage of a current through an adjustable resistor.

No.	TERM.	DEFINITION.
4119	**WHEATSTONE BRIDGE.** *Bridge.*	A particular arrangement of apparatus for the measurement of resistance, and comprising resistors, a galvanometer and a battery or other source of current.
4120	**POST OFFICE BRIDGE.** *P.O. Bridge.*	A self-contained combination of resistors connected up for use as a Wheatstone Bridge.
4121	**VOLTAMETER.**	An electrolytic cell arranged for the measurement of a quantity of electricity by the chemical action produced.
4122	**SILVER VOLTAMETER.**	A voltameter serving to measure a quantity of electricity by the weight of silver deposited.
4123	**INSTRUMENT FOR ABSOLUTE MEASUREMENT.**	An instrument which can be standardised by means of measurements which involve only the fundamental units.
4124	**OSCILLOGRAPH.**	A piece of apparatus serving to produce a curve representing a rapidly varying electrical quantity as a function of the time.
4125	**BOLOMETER.**	An instrument for measuring radiant energy by the alteration in resistance of a fine wire, strip or filament.
4126	**UNIFILAR SUSPENSION.**	The suspension of a moving part of an instrument by a single thread, wire or strip, the restoring force being produced by its torsion.
4127	**BIFILAR SUSPENSION.**	The suspension of the moving part of an instrument by two threads, wires or strips, so arranged that the restoring force is mainly produced by gravity.
4128	**DAMPER.**	Of a meter. A mechanism for diminishing the oscillations of the moving parts.
4129	**WATERTIGHT.**	A qualifying term applied to a meter, to denote that it will withstand complete immersion in water for a long period, without the percolation of moisture into the interior.
4130	**SPLASH-PROOF.**	A qualifying term applied to a meter to denote that it will withstand occasional splashing with water without detriment to its accuracy.

No.	TERM.	DEFINITION.
4131	**PRICE'S GUARD WIRE.**	A conductor, used principally in insulation testing, which intercepts the surface leakage current and prevents it from flowing through the measuring instrument.
4132	**CALIBRATE, TO.**	To mark the scale of a meter by comparison with a standard or to adjust a meter to conform with a predetermined scale or law.
4133	**EFFECTIVE RANGE.**	Of a meter. That part of the total range within which reasonable precision may be expected.
4134	**ERROR IN INDICATION.**	Of a meter. The difference between the indication of a meter and the true value of the quantity measured. It is usually expressed as a percentage and, in industrial work, as a percentage of the indicated value.
4135	**SENSITIVITY.** SENSITIVENESS. FIGURE OF MERIT, *deprecated.*	Of a galvanometer. The magnitude of the deflection produced by a given change in the quantity measured. It is usually expressed as :— (*a*) **CURRENT SENSITIVITY.** The deflection in millimetres produced, on a scale at a distance of one metre, by a current of one micro-ampere. (*b*) **VOLTAGE SENSITIVITY.** The deflection in millimetres produced, on a scale at a distance of one metre, when a voltage of one micro-volt is applied to the galvanometer terminals. (*c*) **QUANTITY SENSITIVITY.** The throw in millimetres produced, on a scale at a distance of one metre, by one micro-coulomb of electricity. In the case of a Vibration Galvanometer the deflection is taken as being the double amplitude.
4136	**FACTOR OF MERIT.** NORMAL SENSITIVITY. NORMAL SENSITIVENESS.	The deflection in millimetres produced on a scale at a distance of one metre by a current of one micro-ampere, the deflection being corrected for coil resistance and time of swing: a resistance of one ohm and a period of 10 seconds are taken as the basis of comparison.

SUB-SECTION 42. INDICATING AND GRAPHIC METERS.

No.	TERM.	DEFINITION.
4201	**GALVANOMETER.**	An instrument for indicating or measuring a small electric current.
4202	**MIRROR GALVANOMETER.**	A galvanometer having a mirror attached to the moving part, a beam of light being reflected from the mirror to a scale, or an image of the scale being observed in the mirror by means of a telescope.
4203	**BALLISTIC GALVANOMETER.**	A galvanometer in which the time of swing of the moving part is long compared with the duration of the transient current which the instrument is intended to measure.
4204	**VIBRATION GALVANOMETER.**	An A.C. galvanometer, the sensitivity of which can be increased by so adjusting its free period of vibration as to agree with the periodic time of the alternating current which is to be detected or measured.
4205	**AMMETER.** AMPEREMETER. AMPERE GAUGE. CURRENT INDICATOR.	An instrument for measuring current and provided with a scale, usually graduated in amperes.
4206	**VOLTMETER.** VOLT GAUGE. POTENTIAL INDICATOR.	An instrument for measuring voltage, and provided with a scale, usually graduated in volts.
4207	**COMPENSATED VOLTMETER.**	A voltmeter so arranged as to indicate the voltage between two conductors at a point remote from that at which it is connected.
4208	**WATTMETER.**	An instrument for measuring electric power and provided with a scale, usually graduated in watts or kilowatts.
4209	**KELVIN BALANCE.** THOMSON BALANCE.	An electro-dynamic ampere-, volt- or wattmeter, due to Kelvin(Thomson) in which the electro-magnetic forces are balanced by the operator against gravity by means of a travelling weight.
4210	**SIEMENS DYNAMOMETER.**	An electro-dynamic ampere-, volt- or wattmeter, due to Siemens, in which the electro-magnetic forces are balanced by the operator against the torsion of a spiral spring.
4211	**FREQUENCY METER.**	An instrument for measuring the frequency of an alternating current.

No	TERM	DEFINITION.
4212	**POWER-FACTOR METER.** POWER-FACTOR INDICATOR. PHASE METER.	An instrument for measuring the difference of phase between two periodic electric quantities of the same frequency. It is usually graduated either in degrees of phase displacement or in power-factor.
4213	**LEAKAGE INDICATOR.** EARTH DETECTOR.	An instrument for indicating or measuring a leakage current to earth.
4214	**CHARGE INDICATOR.** POTENTIAL INDICATOR.	An instrument serving to show whether a conductor is alive (charged) or not.
4215	**ELECTROSCOPE.**	An instrument for detecting or measuring a potential difference or an electric charge by electrostatic means.
4216	**OHMMETER.**	An instrument for measuring electrical resistance or insulation and provided with a scale, usually graduated in ohms or megohms.
4217	**MAGNETO-OHMMETER.**	An ohmmeter embodying a magneto-generator.
4218	**ELECTROMETER.**	An instrument for measuring potential difference by electrostatic means.
4219	**QUADRANT ELECTROMETER.**	An electrometer comprising a moving vane or needle placed within or near four quadrants.
4220	**ELECTROSTATIC VOLTMETER.**	A voltmeter depending for its action upon electrostatic forces.
4221	**SUPPRESSED-ZERO METER.** SET-UP-SCALE METER.	An indicating or graphic meter in which the deflecting force does not overcome the controlling force until a prescribed value is exceeded.
4222	**SYNCHROSCOPE.** SYNCHRONISER. SYNCHRONOSCOPE.	An apparatus serving to indicate the phase relation of two alternating voltages and employed particularly for the paralleling of A.C. generators.
4223	**MAXIMUM-DEMAND INDICATOR.** *Demand Indicator.*	An instrument which indicates the maximum value of current, volt-amperes, power or energy in a circuit over a prescribed period.
4224	**GRAPHIC METER.** RECORDING METER. RECORDER. GRAPHER	A meter for producing a graphic record of the quantity measured, usually by means of ink on a paper chart.

SUB-SECTION 43. INTEGRATING METERS.

No	TERM.	DEFINITION.
4301	**INTEGRATING METER.** *Meter, deprecated.* ELECTRICITY METER.	A meter which sums up or integrates the quantity to be measured with reference to time.
4302	**ELECTROLYTIC METER.** *Ab'n. for Electrolytic Integrating Meter.*	An integrating meter depending for its action upon electrolysis.
4303	**MERCURY ELECTROLYTIC METER.**	An electrolytic meter in which a solution of some salt of mercury forms the electrolyte.
4304	**MOTOR METER.** *Ab'n. for Motor Integrating Meter.*	An integrating meter embodying some form of motor which actuates a counting train or other registering mechanism.
4305	**MERCURY MOTOR METER.** *Mercury Meter, deprecated.*	A motor meter in which a portion of the moving part is immersed in mercury.
4306	**INDUCTION METER.** *Ab'n for Induction Integrating Meter.*	An integrating motor meter embodying some form of induction motor.
4307	**AMPERE-HOUR METER.**	An integrating meter serving to measure a quantity of electricity, expressed in ampere-hours. When used on a constant voltage system it is often calibrated to register in watt-hours.
4308	**WATT-HOUR METER.** ENERGY METER. INTEGRATING WATTMETER. RECORDING WATTMETER, *deprecated.* *Wattmeter, deprecated.*	An integrating meter serving to measure energy, expressed in watt-hours.
4309	**K.V.A.H. METER.** *Ab'n. for Kilovolt-Amp re-hour Meter.*	An integrating meter serving to measure the consumption in kilo-volt-ampere-hours.
4310	**REACTIVE VOLT-AMPERE-HOUR METER.** SINE METER. WATTLESS COMPONENT METER.	An integrating meter serving to measure the reactive component of the consumption; *i.e.*, the quantity, volts × amperes × sin ϕ, where ϕ is the phase displacement between amperes and volts.
4311	**PREPAYMENT METER.**	An integrating meter which, on the insertion of a certain coin, permits current to flow through the meter until a predetermined number of units has been registered.
4312	**TWO-RATE METER.**	An integrating meter for use with a two-rate tariff.
4313	**TIME METER.** HOUR METER.	An instrument serving to measure the time during which current flows in a circuit.

SECTION 5.

TRANSMISSION AND DISTRIBUTION.

Sub-Section 51. Systems.
52. Feeders, Mains, etc.
53. Conductors and Cables.
54. Constructional Features.
59. Miscellaneous Terms.

SUB-SECTION 51. SYSTEMS.

No.	TERM.	DEFINITION.
5101	**TWO-WIRE SYSTEM.**	A system of electric supply comprising two conductors between which the load is connected.
5102	**THREE-WIRE SYSTEM.**	A system of direct current or single-phase alternating electric supply, comprising three conductors, one of which (known as the MIDDLE WIRE) is maintained at a potential midway between the potentials of the other two (referred to as the OUTER conductors). Part of the load may be connected directly between the outer conductors, the remainder being divided, as evenly as possible, into two parts which are connected between the middle and the two outer conductors. There are thus two distinct voltages of supply, the one being twice the other.
5103	**BALANCED THREE-WIRE SYSTEM.**	A three-wire system in which the loads connected between the middle and each of the outer conductors are equal.
5104	**TWO-PHASE THREE-WIRE SYSTEM.**	A system of alternating-current supply comprising three conductors between one of which (known as the **COMMON RETURN**) and each of the other two are maintained alternating differences of potential displaced in phase by one-quarter of a period with relation to each other.

No.	TERM.	DEFINITION.
5105	**TWO-PHASE FOUR-WIRE SYSTEM.**	A system of alternating-current supply comprising two pairs of conductors between one pair of which is maintained an alternating difference of potential displaced in phase by one-quarter of a period from an alternating difference of potential maintained between the other pair.
5106	**THREE-PHASE THREE-WIRE SYSTEM.**	A system of alternating-current supply comprising three conductors between successive pairs of which are maintained alternating differences of potential successively displaced in phase by one-third of a period.
5107	**THREE-PHASE FOUR-WIRE SYSTEM.**	A system of alternating-current supply comprising four conductors three of which are connected as in a three-phase three-wire system, the fourth being connected to the neutral point of the supply.
5108	**EARTHED SYSTEM.**	A system of electric supply in which one or more conductors or points (usually the middle wire or neutral point) are deliberately connected to earth.
5109	**INSULATED SUPPLY SYSTEM.**	A system of electric supply in which no point is deliberately connected to earth.
5110	**TWO-CONDUCTOR INSULATED WIRING SYSTEM.**	A system of wiring in which conductors, insulated throughout, are provided for all connections, to both poles of the supply. The conductors may be separate, twin or concentric.
5111	**TWO-CONDUCTOR EARTHED WIRING SYSTEM.**	A system of wiring in which conductors, not used for any other purpose, are provided for all connections to both poles of the supply, those connected to one pole being insulated, and those connected to the other being uninsulated throughout and efficiently earthed. The conductors are usually concentric, the outer being earthed.

No	TERM.	DEFINITION.
5112	**EARTHED CONCENTRIC WIRING SYSTEM.**	A system of wiring in which one of the conductors, efficiently earthed (known as the **EXTERNAL** or OUTER conductor), completely surrounds the other (known as the **INTERNAL** or INNER conductor) throughout its length. The external conductor is usually uninsulated.
5113	**CONDUCTOR WITH DOUBLE INSULATION.**	A conductor in which insulating material intervenes, not only between the conductor and its surrounding envelope (if a cable) or immediate support (if bare), but also between this and earth.
5114	**DRAW-IN SYSTEM.**	A system of laying mains in which the cables or wires are drawn into pipes or ducts after the latter have been laid or fixed in position, and in such a manner that the cables or wires can be withdrawn, at any time, without disturbing the pipes or ducts.
5115	**PROTECTIVE SYSTEM.**	A combination of apparatus, responsive to the abnormal conditions produced by a failure of electric plant and operating so as to protect the system from the consequences of such failure, by automatically isolating the faulty portion of the plant.
5116	**DISCRIMINATING PROTECTIVE SYSTEM.**	A protective system intended to be responsive only to a fault occurring in a particular portion of the plant.
5117	**LEAKAGE PROTECTIVE SYSTEM.**	A protective system intended to be responsive only to a fault to earth.

SUB-SECTION 52. FEEDERS, MAINS, ETC.

No.	TERM.	DEFINITION.
5201	**MAIN.**	Any conductor forming part of the transmission or distribution system between a generating station and a consumers' service line.
5202	**FEEDER.**	A conductor connecting (*a*) a generating station with a sub-station or feeding point, or (*b*) a sub-station with a feeding point.

No.	TERM.	DEFINITION.
5203	**SINGLE FEEDER.** UNIT FEEDER.	A feeder which forms the only connection between two points, along the route considered.
5204	**PARALLEL FEEDER.** DUPLICATE FEEDER, MULTIPLE FEEDER.	A feeder which is in parallel with one or more other feeders connecting the same two points.
5205	**TRUNK FEEDER.** *Trunk.* TRUNK MAIN.	A feeder connecting two generating stations or a generating station and an important sub-station.
5206	**INDEPENDENT FEEDER.** RADIAL FEEDER. DEAD-ENDED FEEDER.	A feeder supplying electrical energy to a sub-station or to a feeding point which receives energy by no other means. The normal flow of energy in such a feeder is in one direction only.
5207	**INTERCONNECTOR.** INTERCONNECTING FEEDER.	A feeder which is connected at each end to a source of electrical energy, such as a generating system, sub-station or feeding point. The normal flow of energy in such a feeder may be in either direction.
5208	**RING MAIN.** *Ring.*	A number of inter-connecting feeders in series forming a closed circuit. There are two routes by which any point on a ring main can receive electrical energy, so that the flow may be in either direction.
5209	**DISTRIBUTOR.** DISTRIBUTING MAIN	A conductor intervening between a feeder and a service line.
5210	**SERVICE LINE.** SERVICE MAIN.	A conductor connecting a distributor to a consumer's installation.
5211	**NETWORK.**	An aggregation of interconnected conductors, consisting of feeders, service lines and distributors, for the distribution of electrical energy.
5212	**DISTRIBUTION NETWORK.**	A network consisting of distributors only.
5213	**NEGATIVE FEEDER.** RETURN FEEDER.	In a system of electric traction, the feeder connecting the track rails or negative conductor rail to the negative bus-bars at a sub station or generating station.
5214	**FEEDING POINT.** DISTRIBUTING POINT.	The point of junction of a feeder with a distributor or service line.

No.	TERM.	DEFINITION.
5215	**MIDDLE WIRE.** NEUTRAL WIRE, *deprecated.*	That conductor of a three-wire system of supply the potential of which is intermediate between those of the other two.
5216	**OUTERS.**	The two conductors of a three-wire system between which is maintained the greater of the two voltages of supply.
5217	**NEUTRAL POINT.**	Of an A.C. system. That point which has the same potential as the point of junction of a group of equal non-reactive resistances if connected at their free ends to the appropriate main terminals or lines of the system. The number of such resistances is 2 for single-phase, 4 for 2-phase (applicable to 4-wire systems only) and 3 for three, six, or twelve-phase systems.
5218	**PILOT WIRE.**	An auxiliary conductor used for measuring the voltage or for operating apparatus, at a distant point.

SUB-SECTION 53. CONDUCTORS AND CABLES.

No.	TERM.	DEFINITION.
5301	**CONDUCTOR.** CORE, *deprecated.*	Of a cable or core. The conducting portion, consisting of a single wire or of a group of wires connected in parallel.
5302	**BARE CONDUCTOR.**	A conductor not covered with insulating material.
5303	**UNINSULATED CONDUCTOR.**	A conductor in which no provision is made for its insulation from earth.
5304	**PLAIN CONDUCTOR.**	A conductor consisting of one metal only.
5305	**TINNED CONDUCTOR.**	A conductor (usually copper) the wire or wires of which are covered with a thin coating of tin.
5306	**SOLID CONDUCTOR.**	A conductor consisting of a single wire.

No.	TERM.	DEFINITION.
5307	**BUNCHED CONDUCTOR.**	A conductor consisting of any number of wires twisted together all in the same direction and with the same lay throughout.
5308	**STRANDED CONDUCTOR.**	A conductor consisting of 3 or more wires in which, if the number exceeds 4, the wires are built up in layers, each layer having a definite lay. The individual layers may be applied in the same or, alternately, in opposite directions.
5309	**STRANDED CIRCULAR CONDUCTOR.**	A stranded conductor which, if consisting of more than 4 wires, is built up in concentric layers, the number of wires in each layer usually increasing in arithmetical progression.
5310	**STRANDED SHAPED CONDUCTOR.**	A stranded conductor the cross-section of which is other than circular in shape.
5311	**CABLE.**	A length of single insulated conductor (usually stranded); or of two or more conductors (whether stranded or solid) each provided with its own insulation and laid up together. The insulated conductor or conductors may or may not be provided with an overall mechanical protective covering.
5312	**CORE.**	Of a cable. The conductor with its insulation but not including any mechanical protective covering.
5313	**SINGLE CABLE.**	A cable containing one core only.
5314	**TWIN CABLE.**	A cable containing two cores not arranged concentrically.
5315	**THREE-CORE CABLE.**	A cable containing three cores not arranged concentrically.
5316	**MULTICORE CABLE.**	A cable containing three or more cores not arranged concentrically.
5317	**SPLIT-CONDUCTOR CABLE.**	A cable in which each conductor is divided into two or more sections insulated from each other and normally connected in parallel.
5318	**FLEXIBLE CABLE.**	A cable consisting of one or more cores, each formed of a group of wires, the diameter of the cores and of the wires being sufficiently small to afford flexibility.

No.	TERM.	DEFINITION.
5319	**FLEXIBLE CORD.** *Flex.*	A flexible cable of small cross section.
5320	**CONCENTRIC CABLE.**	A cable consisting of two or more separate conductors, arranged concentrically, with insulation between them. Unless otherwise qualified, the term denotes a cable consisting of two conductors only.
5321	**TWIN CONCENTRIC CABLE.**	A cable consisting of three separate conductors of which two are formed as a twin cable and are enclosed by wires arranged annularly which constitute the remaining conductor.
5322	**TRIPLE CONCENTRIC CABLE**	A concentric cable consisting of three conductors.
5323	**DOUBLE INSULATED CONDUCTOR.**	A conductor provided with insulating material between itself and its surrounding envelope or immediate support, as well as between this and the earth.
5324	**EARTH SHIELD.**	Of a cable. A metal sheath immediately under the lead sheath of a cable and uninsulated therefrom.
5325	**TEST SHIELD.**	Of a cable. An insulated metal sheath under the lead sheath of a cable and insulated therefrom.
5326	**INSULATING MATERIAL.** INSULATION. DIELECTRIC, *deprecated.*	Of a cable. That part which is relied upon to insulate the conductor.
5327	**BRAIDING.**	Of a cable. A plaited protective covering.
5328	**TOUGH RUBBER SHEATHING.** CAB-TYRE SHEATHING.	Of a cable. A sheathing used on an insulated cable to form an outer protective covering of tough or hard rubber (such as is used for the solid tyres of cabs), composed of rubber mixed with hardening substances and suitably vulcanised to make it waterproof and resistant to decay, mechanical abrasion, acids, alkalis and other corrosive materials.
5329	**ARMOURED CABLE.**	A cable provided with a wrapping of metal, primarily for the purpose of mechanical protection.
5330	**LEAD-COVERED CABLE.** LEAD-SHEATHED CABLE.	A cable provided with a sheath of lead for the purpose of excluding moisture from the conductors and insulation thereof.

No.	TERM.	DEFINITION.
5331	**PLAIN LEAD-COVERED CABLE.**	A lead-covered cable without any layer of protecting material.
5332	**SERVED LEAD-COVERED CABLE.**	A lead-covered cable having a layer of protecting material, such as jute yarn or tape.
5333	**ARMOURING.** ARMOUR.	Of a cable. A wrapping of metal round a cable, intended as a mechanical protection.
5334	**BEDDING.**	Of an armoured cable. A layer of soft material, such as jute yarn or tape, applied to the cable immediately beneath the armouring.
5335	**SERVING.**	Of an armoured or lead-covered cable. A layer of protective material, such as jute yarn or tape, applied to the exterior of the cable.
5336	**PROOFED TAPE.**	A tape applied to the insulation of rubber-insulated cables and composed of cotton cloth coated with a rubber compound.
5337	**ELECTROLYTIC WIRE BAR.**	Electrolytically refined copper (or aluminium) cast into a bar of suitable dimensions for rolling in a rod mill.
5338	**WIRE ROD.**	A rolled rod suitable for drawing into wire.
5339	**SCAB.**	An adhesion of scale or other matter causing damage to the surface of wire or strip.
5340	**SPILL.**	A defect in wire or strip caused by a portion of the metal having been partially detached from and subsequently embedded in the remainder. Its presence may be indicated merely by a darkened outline of its form at the surface, or it may appear as separated from the body of the wire or strip for a portion of its length.
5341	**SPLIT.**	A division in the body of a wire running lengthwise for a considerable distance. It may appear only as a dark line on the surface, but will open on bending.

No.	TERM.	DEFINITION.
5342	**LAY.**	Of a cable. The axial length of one complete turn of the helix formed by the wire, stranded conductor or core of a cable.
5343	**LAY RATIO** LAY, *deprecated.*	The ratio of the axial length of a complete turn of the helix formed by the wire, stranded conductor or core of a cable, to the mean diameter of the helix.
5344	**LEAD.**	(*a*) A term sometimes used as a synonym for a conductor. (*b*) Of a conductor or pipe. The direction of run.

SUB-SECTION 54. CONSTRUCTIONAL FEATURES.

No.	TERM.	DEFINITION.
5401	**GENERATING STATION.** *Station.* SUPPLY STATION, POWER STATION, POWER HOUSE.	A building complete with equipment installed for the generation and supply of electrical energy.
5402	**HYDRO-ELECTRIC GENERATING STATION.**	A generating station in which hydraulic energy is converted into electrical energy.
5403	**SUBSTATION.**	An assemblage of equipment installed for the supply of electrical energy and comprising converting or transforming machinery, batteries or controlling apparatus but no prime movers.
5404	**INSTALLATION.**	(*a*) The operation of erecting and connecting up the necessary plant and equipment for the application of electricity on any particular premises, or for a specific purpose. (*b*) The complete plant and equipment necessary for the application of electricity on any particular premises, or for a specific purpose.
5405	**SWITCHGEAR PILLAR.** *Pillar.*	A self-contained structure of pillar form standing on its own base for the support and/or enclosure of switchgear.
5406	**FEEDER PILLAR.**	A switchgear pillar containing switches, links or fuses for connecting feeders with distributing mains.

No.	TERM.	DEFINITION.
5407	**DISTRIBUTION PILLAR.**	A switchgear pillar containing switches, links or fuses for interconnecting distributing mains.
5408	**JUNCTION BOX.** FEEDER BOX. JOINT BOX.	A box, usually underground, containing switches, links or fuses for connecting feeders with distributing mains.
5409	**JOINTING CHAMBER.** SPLICING CHAMBER. *U.S.A.*	An underground box, vault or chamber at which cable conduits terminate and in which cables can be jointed.
5410	**MAN-HOLE.**	An opening giving access to an underground draw-in box, junction box or jointing chamber. The term is usually applied to one capable of allowing the passage of a man.
5411	**DUCT.**	A pipe (**SINGLE DUCT**) or block perforated with holes (**MULTIPLE DUCT**), through which cables are drawn. The pipe or block is usually non-metallic and may be set in concrete. The holes themselves are sometimes known as ducts, but this is deprecated.
5412	**WAYS.** DUCTS, *deprecated.*	The holes in a multiple duct, intended for the reception of cables.
5413	**TROUGHING.**	An open channel of earthenware, wood or other material in which a cable or cables may be laid and protected by a cover.
5414	**CONDUIT.**	A line of pipes, ducts or troughing for the reception of one or more cables.
5415	**BUNCHED CABLES.**	Two or more cables either contained within a single duct or groove, or if unenclosed, not separated from each other.
5416	**DRAW-IN BOX.** DRAW-IN PIT.	A box or pit through which cables are inserted or removed in a draw-in system of mains. It contains no links, fuses, or switches, but may contain permanent joints.
5417	**DIVIDING BOX.**	A box in which the several cores of a twin or multi-core cable are separated, so that when they emerge each core forms a separate single core, cable or bare conductor.
5418	**BIFURCATING BOX.**	A dividing box containing the joints between a twin core or concentric cable and two single-core cables or bare conductors.

No.	TERM.	DEFINITION.
5419	**TRIFURCATING BOX.**	A dividing box containing the joints between a three-core or triple concentric cable and three single-core cables or bare conductors.
5420	**SEALING BOX.** SEALING CHAMBER.	A box in which the end of a paper-insulated cable may be hermetically sealed by filling with a compound.
5421	**WATERTIGHT GLAND.**	A form of stuffing box for use where a cable passes into a junction box or other piece of apparatus and so arranged as to render the joint watertight.
5422	**ARMOUR CLAMP.** ARMOUR GLAND, ARMOUR GRIP.	A fitting for gripping the armouring of a cable at the point where the cable enters a junction box or other piece of apparatus.
5423	**WIPING GLAND.**	A projecting sleeve on a junction box or other piece of apparatus serving to make a connection to the lead sheathing of a cable by means of a plumbers' wiped joint.
5424	**LEAD GRIP.**	A gripping device (such as a lead cone) on a junction box or other piece of apparatus for the purpose of bonding it to the lead sheathing of a cable.
5425	**POLE.** STANDARD	In overhead construction. A standard of wood or tubular steel, or a similar structure of some other material, supporting overhead conductors, usually by means of arms or brackets, span wires or bridges. Broad base lattice steel supports are often known as **TOWERS**; narrow base steel supports are often known as **MASTS.**
5426	**GUARD WIRE.**	An earthed wire erected near a telegraph, telephone or other uninsulated wire in such a position that a neighbouring live overhead conductor cannot come into accidental contact with the telegraph or other wire without first becoming earthed by contact with the guard wire.
5427	**STRAIGHT-THROUGH JOINT.**	A joint used for connecting in series two lengths of conductor or cable.

No.	TERM.	DEFINITION.
5428	**TEE JOINT.**	A joint used for connecting a branch conductor or cable to a main conductor or cable, where the latter continues beyond the branch.
5429	**LOOPING-IN.**	In wiring. A method of avoiding tee joints by carrying the conductor to and from the point to be supplied.
5430	**POINT.** OUTLET, *U.S.A.*	In wiring. The termination of the wiring intended for attachment to a fitting for one or more lamps or other consuming devices.
5431	**STOP END.**	Of a cable. The end of a cable in which all the cores are insulated and protected.
5432	**SEALED END.** CAPPED END.	Of a cable. The end of a cable fitted with a sweated lead cap forming a solid seal.
5433	**SOLID END.**	Of a cable. The sealed end of a cable, in which all the conductors are sweated on to the lead cap.
5434	**CABLE BOND.** CABLE SHEATH BOND.	An electrical connection across a joint in or between adjacent lengths of the armouring or lead sheathing of a cable, or between the armouring or sheathing and the earth.
5435	**CONTINUITY CABLE BOND.**	A cable bond used for bonding across joints between contiguous lengths of cable.
5436	**CROSS CABLE BOND.**	A cable bond used for bonding between the armouring or lead sheathing of adjacent cables.
5437	**EARTHING CABLE BOND.**	A cable bond used for connecting the armouring or lead sheathing of a cable to earth.
5438	**SAG.**	Of a suspended wire. The maximum vertical distance between the wire and a straight line joining the points of suspension.

SUB-SECTION 59. MISCELLANEOUS TERMS.

No.	TERM.	DEFINITION.
5901	**CONNECTED LOAD.**	The sum of the rated inputs of all the consuming apparatus, on the consumers' premises, which is connected to the system or any part of the system under consideration.
5902	**LOAD FACTOR.**	The ratio of the average load to the maximum load during a prescribed period of time. The ratio is usually expressed as a percentage and the period of time is usually one year, one week or one day. The maximum load is usually determined by integrating the load during successive equal intervals of time (*e.g.*, 5 or 15 minutes) and recording the highest.
5903	**PLANT FACTOR.** *U.S.A.*	The ratio of the average load to the aggregate rated load of the generators which supply it.
5904	**DIVERSITY FACTOR.**	The ratio of the sum of the maximum loads of the individual consumers supplied from any works during a given period, to the maximum load delivered from the works during the same period. The maximum load is usually determined by integrating the load during successive equal intervals of time (*e.g.*, 5 or 15 minutes) and recording the highest.
5905	**MAXIMUM DEMAND.**	The maximum current, power, or volt-amperes supplied to a consumer during a prescribed period. It is usually determined by integrating the consumption during successive equal intervals of time (*e.g.*, 5 or 15 minutes) and recording the highest. It should be expressed as Maximum Demand (instantaneous) or Maximum Demand (. . . minutes).
5906	**DEMAND FACTOR.**	The ratio of the maximum demand of an installation or supply system to the connected load.

No.	TERM.	DEFINITION.
5907	**FLAT-RATE TARIFF.**	A method of charging for electrical energy in which a price is charged according to one single condition, such as the number of units metered or the maximum demand.
5908	**TWO-RATE TARIFF.**	A method of charging for electrical energy in which a discrimination is made in the tariff rate for two periods of the day.
5909	**SEASONAL-RATE TARIFF.**	A method of charging for electrical energy in which a discrimination is made in the tariff rate for different seasons of the year.
5910	**TWO-PART TARIFF.**	A method of charging for electrical energy in which a fixed charge is made, based on a characteristic of the service (*e.g.*, the maximum demand, rateable value, or floor space on the consumers' premises), with an additional charge for each unit consumed.
5911	**MAXIMUM-DEMAND TARIFF.**	A two-part tariff in which the fixed charge is based on the ascertained or calculated maximum demand of the consumer.
5912	**VOLTAGE DROP.**	In a supply system. The difference between the voltages at the transmitting and receiving ends of a feeder or distributor. With alternating current, the voltages are not necessarily in phase, and hence the voltage drop is not necessarily equal to the sum of the voltage drops along the feeders or distributors.
5913	**FAULT.**	Any local defect in the insulation or continuity of a conductor.
5914	**FAULT CURRENT.**	A current flowing from one conductor to earth or to another conductor owing to a defect in the insulation.
5915	**LEAKAGE CURRENT.**	A fault current of relatively small value, as distinguished from that due to a short-circuit or a dead earth.

No.	TERM.	DEFINITION.
5916	**EARTH CURRENT.**	A fault current flowing to earth.
5917	**LOOP TEST.**	A method of testing employed to locate a fault in the insulation of a conductor when the conductor can be arranged to form part of a closed circuit or loop.
5918	**FALL OF POTENTIAL TEST.** DROP TEST, CONDUCTIVITY TEST.	A method of testing employed to locate a fault in an insulated conductor by comparing the voltage drop along a known length of the conductor with that up to the fault.
5919	**CROSS-SECTION.**	Of the conductor of a cable or core. The area of a solid conductor of the same resistivity and having the same resistance as that of an equal length of the cable in question. In the case of a split conductor cable, the cross-section is the sum of the cross-sections of each of the two or more sections into which the conductor is divided.
5920	**THERMAL RESISTANCE.**	Of a cable. The difference of temperature between the inside and outside of the cable, divided by the steady flow of heat produced thereby. It is preferably expressed as the number of degrees centigrade per watt.

SECTION 6.

ELECTRO-CHEMISTRY.

Sub-Section 61. Electro-Chemistry, General.
62. Primary Cells and Accumulators.
63. Electro-Metallurgy (including Electroplating, Electrotyping and Electrolytic refining).

SUB-SECTION 61. ELECTRO-CHEMISTRY, GENERAL.

No.	TERM.	DEFINITION.
6101	**ELECTRO-CHEMISTRY.**	A branch of chemistry dealing with inter-related chemical and electrical phenomena.
6102	**ELECTROLYSIS.**	The decomposition which may take place when an electric current is passed through a chemical compound, more particularly a liquid, by means of electrodes.
6103	**ELECTROLYTE.**	Any compound which undergoes chemical decomposition when an electric current is passed through it by means of electrodes.
6104	**ELECTROLYTIC CELL.**	A receptacle in which electrolysis takes place, *e.g.*, an electroplating bath.
6105	**HYDROLYSIS.**	A form of chemical decomposition by which a compound is resolved into other compounds by taking up the elements of water.
6106	**POLARISATION.**	A condition set up in a voltaic or electrolytic cell as a result of the passage of a current and manifesting itself as a back-electromotive force, but ceasing to develop when the current is not flowing.
6107	**POLARISER.**	The ion or gas (usually hydrogen) which appears at the cathode of a voltaic or electrolytic cell, and which, if not removed, gives rise to polarisation.
6108	**DEPOLARISER.**	A liquid, solid or paste, the function of which is to remove a polariser.

No.	TERM.	DEFINITION.
6109	**AMPHOTERIC ELECTROLYTE.**	An electrolyte with alternative methods of dissociation, *e.g.* :— $HIO \rightarrow I^+ + OH^-$ $HIO \rightarrow H^+ + IO^-$
6110	**ELECTRODE.**	A conductor by means of which an electric current passes into or out of an electrolytic or voltaic cell.
6111	**ANODE.**	The electrode through which a direct current enters an electrolytic or voltaic cell.
6112	**CATHODE.**	The electrode through which a direct current leaves an electrolytic or voltaic cell.
6113	**SECONDARY ELECTRODE.** BIPOLAR ELECTRODE.	An insulated electrode, the opposite sides of which form a cathode and anode respectively when immersed in an electrolyte through which current is passing.
6114	**ANOLYTE.**	That portion of an electrolyte which surrounds the anode.
6115	**CATHOLYTE.**	That portion of an electrolyte which surrounds the cathode.
6116	**DIAPHRAGM.** *Ab'n. for Electrolytic Diaphragm.*	A partition serving to prevent the free mixture of anolyte and catholyte, while allowing them to remain in electrical contact. It may be formed of porous insulating material or of non-porous conducting material.
6117	**ELECTRODE POTENTIAL.** SINGLE POTENTIAL.	The difference of potential between an electrode and the solution in which it stands.
6118	**ELECTROLYTIC SOLUTION VOLTAGE.** ELECTROLYTIC SOLUTION PRESSURE.	The minimum voltage which, if applied between an electrode and the liquid in which it stands, will prevent the formation of ions therein.
6119	**NORMAL ELECTRODE.** AUXILIARY ELECTRODE.	An electrode used as a standard for electrode potential measurements.
6120	**CALOMEL ELECTRODE.**	A normal electrode consisting of mercury in contact with HgCl (calomel) and normal or deci-normal KCl which is maintained saturated with HgCl. With normal KCl the potential difference between the mercury and the solution is +0·56 volts.
6121	**CADMIUM ELECTRODE.** CADMIUM TESTER	A normal electrode for use with a lead accumulator and consisting of a cadmium rod, which can be immersed in the sulphuric acid.

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No.	TERM	DEFINITION.
6122	**HYDROGEN ELECTRODE.**	A normal electrode consisting of hydrogen gas bubbling round a platinum plate immersed in twice normal sulphuric acid.
6123	**CATAPHORESIS.**	The electrical transfer of particles of a finely divided non-conducting substance through an electrolyte.
6124	**CELL CONSTANT.**	Of a voltaic or electrolytic cell. A constant, numerically equal to the mean distance between the electrodes divided by the mean cross-sectional area of the current path.
6125	**CURRENT DENSITY.**	In electroplating. The current per unit area of the surface of the electrode, usually expressed in amperes per square foot.
6126	**DECOMPOSITION VOLTAGE.**	The minimum voltage which, when impressed on a cell, will cause the transformation of electrical into chemical energy.
6127	**DILUTION LAW.**	A principle enunciated by Ostwald, applying to weak electrolytes, and expressing the progress of dissociation with dilution.
6128	**FARADAY'S LAW.**	A principle enunciated by Faraday namely that, in electro-chemical operations, the masses of the different materials concerned are proportional to their chemical equivalents.
6129	**ELECTRODE EFFICIENCY.**	In a given electro-chemical process (*e.g.*, the deposition of a metal), the ratio of the mass resulting at an electrode to that which would be obtained under Faraday's Law.
6130	**ELECTRO-THERMAL.**	A qualifying term applied to operations accomplished by means of electrically developed heat.
6131	**ELECTRIC ENDOSMOSE.**	The passage of a liquid electrolyte through a diaphragm towards the cathode, when a current flows.
6132	**ENDOTHERMIC REACTION.**	A reaction accompanied by the absorption of heat.
6133	**EXOTHERMIC REACTION.**	A reaction accompanied by the evolution of heat.
6134	**VOLTAMETER.**	An electrolytic cell arranged for the measurement of a quantity of electricity by the chemical action produced.

No.	TERM.	DEFINITION.
6135	**SILVER VOLTAMETER.**	A voltameter serving to measure a quantity of electricity by the weight of silver deposited.
6136	**GAS VOLTAMETER.** GAS COULOMB-METER.	A voltameter serving to measure a quantity of electricity by the volume of gas evolved.
6137	**HYDRATION.**	The combination of a solute, whether molecular or ionic, with water, thereby leaving less free water in the solution.
6138	**ION.**	A molecular or atomic aggregate which carries an excess of either positive or negative electrical charge.
6139	**ANION.**	The ion which carries the negative charge against the direction of the current and delivers it at the anode
6140	**CATHION.**	The ion which carries the positive charge in the direction of the current and delivers it at the cathode.
6141	**COMPLEX ION.**	An ion which is not an element but a compound, *e.g.*, $Ag(CN)_2$, which forms the negative ion in the electrolytic decomposition of Ag CN.KCN.
6142	**IONISATION.** ELECTROLYTIC DISSOCIATION. ELECTROLYTIC IONISATION.	Of an electrolyte. The reversible resolution of an electrolyte into oppositely charged ions the migration of which constitutes a flow of current through an electrolyte.
6143	**IONIC MOBILITY.**	The rate of migration of ions under given conditions.
6144	**SPECIFIC IONIC MOBILITY.**	The mobility of the ions of a given substance, as expressed by the conductance of one gramme-ion between electrodes one centimetre apart.
6145	**HYDROGEN ION CONCENTRATION**	The concentration of the hydrogen ions in a solution, which is the real measure of its acidity. It is expressed as the logarithm of the number of litres which contain one gramme of hydrogen-ion. The symbol *pH* is often used.

No.	TERM.	DEFINITION.
6146	**MOLECULAR CONDUCTIVITY.**	The conductivity of an electrolyte divided by its concentration, *i.e.*, the number of gramme equivalents per cubic centimetre.
6147	**REVERSIBLE PROCESS.**	An electro-chemical process which is reversible with respect to chemical and electrical energy.
6148	**IRREVERSIBLE PROCESS.**	An electro-chemical process which is not reversible with respect to chemical and electrical energy.
6149	**ISOTHERMAL PROCESS.**	A process working at constant temperature.
6150	**TRANSPORT NUMBERS.**	The fraction of the total current in an electrolyte due to the migration of the anion and cathion, respectively.
6151	**DIALYSIS.**	The separation of two substances in solution by the use of a membrane permeable to the one but not to the other.
6152	**OSMOSIS.**	The phenomenon by virtue of which, when a solvent and a solution embodying that solvent are separated by a semi-permeable membrane, the solvent tends to diffuse into the solution.
6153	**OSMOTIC PRESSURE.**	The mechanical pressure necessary to prevent osmosis in the case of a given element.
6154	**OSMOTIC CELL.**	A cell in which osmotic pressure is developed.
6155	**OSMOMETER.**	An instrument serving to measure osmotic pressure.
6156	**OVERVOLTAGE.**	A phenomenon of certain electrodes by virtue of which a higher voltage is required than is theoretically necessary for the discharge of an ion.
6157	**PASSIVITY.**	A condition induced on the surface of a metal usually by the action of a concentrated electrolyte, such that it is less easily attacked by re-agents than when in the normal state.

No.	TERM.	DEFINITION.
6158	**KNALL GAS.**	A mixture of 2 volumes of hydrogen to 1 volume of oxygen, such as is obtained from the decomposition of water.
6159	**POLE-PAPER.** POLE-FINDING PAPER.	A porous paper soaked in certain chemicals which undergoes a visible change when moistened and applied to the positive and negative poles of an electric circuit, thus serving to identify them.
6160	**SEMI-PERMEABLE.**	A qualifying term applied to a partition or boundary which permits the passage of a solvent, but prevents that of a solute or of certain classes of solute, *e.g.*, copper ferrocyanide.

SUB-SECTION 62. PRIMARY CELLS AND ACCUMULATORS.

No.	TERM.	DEFINITION.
6201	**VOLTAIC CELL.** *Cell.*	A source of electrical energy depending on chemical action and complete in itself, *e.g.*, a Primary Cell, an Accumulator. It comprises two electrodes, each of which is immersed in an electrolyte and reacts therewith to produce an E.M.F.
6202	**SINGLE-FLUID CELL.**	A voltaic cell in which the two electrodes are immersed in the same electrolyte.
6203	**TWO-FLUID CELL.**	A voltaic cell in which the two electrodes are immersed in different electrolytes.
6204	**ELEMENT.**	Of a voltaic cell. Each of the two electrodes which are immersed in the electrolyte and which react therewith to produce an E.M.F.
6205	**POSITIVE ELEMENT.**	The more electro-negative of the two elements of a voltaic cell. Although the electro-negative element might logically be termed the negative element it is now generally known as the positive owing to the fact that the exposed portion forms the positive terminal of the cell.

No.	TERM.	DEFINITION.
6206	**NEGATIVE ELEMENT.**	The more electro-positive of the two elements of a voltaic cell. Although the electro-positive element might logically be termed the positive element it is now generally known as the negative owing to the fact that the exposed portion forms the negative terminal of the cell.
6207	**POLE.**	Of an electrolytic or voltaic cell. The terminal or accessible part of an electrode.
6208	**PRIMARY CELL.**	A voltaic cell for the direct conversion of chemical energy into electrical energy, characterised by the consumption of the more electro-positive of the two elements forming the cell. For all practical purposes a Primary Cell is irreversible.
6209	**DRY CELL.**	A primary cell in which the electrolyte is in the form of a paste or is so far retained by some absorbent material that it does not flow out if the cell be inverted. Such a cell is normally closed or sealed, except for a small vent.
6210	**INERT CELL.**	A closed primary cell containing solid ingredients which form an electrolyte when water is added; such a cell being inactive and incapable of producing a current so long as it is kept free from water.
6211	**CONCENTRATION CELL.**	A cell which contains two solutions, of the same salt but of different degrees of concentration, and in which a piece of the same metal forms the electrode in each solution. The metal dissolves into the weaker solution and receives a deposit from the stronger solution. Theoretically this action continues until the solutions are of the same strength.
6212	**CARBON CELL.**	A voltaic cell for the conversion of the chemical energy of carbon directly into electrical energy.
6213	**STANDARD CELL.**	A cell prepared according to a given specification and intended as a standard of potential difference.

No.	TERM.	DEFINITION.
6214	**CLARK CELL.**	A standard cell, comprising electrodes of mercury and zinc amalgam in an electrolyte of zinc sulphate with mercurous sulphate as a depolariser.
6215	**CADMIUM CELL.**	A standard cell, comprising electrodes of mercury and cadmium amalgam in an electrolyte of cadmium sulphate with mercurous sulphate as a depolariser.
6216	**POROUS POT.**	An unglazed earthenware pot serving as a diaphragm in a two-fluid cell.
6217	**AMALGAMATE, TO.**	The process of treating zinc with mercury so that it becomes covered with a protective coating of zinc amalgam.
6218	**ACCUMULATOR.** ACCUMULATER CELL. STORAGE CELL. SECONDARY CELL.	A voltaic cell which is approximately reversible and which, after discharge can be brought back to its initial (charged) chemical condition by passing a current through it in the reverse direction to that of discharge.
6219	**CHARGE, TO.**	To pass a current of electricity through an accumulator so as to bring it to a chemical condition such that it is capable of supplying a quantity of electricity to an external circuit. The quantity of electricity thus put in is known as the **CHARGE** and is usually measured in ampere-hours.
6220	**DISCHARGE, TO.**	To connect an accumulator to an external circuit in such a way that a current flows through the cell in the reverse direction to that of charge. The quantity of electricity thus taken out is known as the **DISCHARGE** and is usually measured in ampere-hours.
6221	**CAPACITY.**	The quantity of electricity, usually expressed in ampere-hours, which may be taken from a cell at a given rate of discharge.
6222	**EFFICIENCY.**	Of an accumulator :— (*a*) **WATT-HOUR EFFICIENCY :** The ratio of the amount of energy available during discharge to the amount of energy required during charge.

No.	TERM.	DEFINITION.
6223	**EFFICIENCY** *(contd.)*	Of an accumulator :— (*b*) **AMPERE-HOUR EFFICIENCY:** The ratio of the quantity of electricity available during discharge to the quantity of electricity required during charge.
6224	**REGULATOR CELL.** END CELL.	One of a number of cells in a battery of accumulators which can be cut in or out of circuit in order to maintain constant the voltage of the supply during charge and discharge, thus compensating for the varying voltage of the cells.
6225	**BACK E.M.F. CELLS.** COUNTER E.M.F. CELLS.	Cells connected in a circuit in such a way that their E.M.F. opposes the flow of current through it.
6226	**BATTERY.**	Two or more primary cells or accumulators electrically connected in one circuit.
6227	**PLATE.**	Of an accumulator or primary cell. One of the solid conductors, one or more of which constitutes an electrode.
6228	**PASTED PLATE.** FAURE PLATE.	Of an accumulator. A type of plate (used in lead-acid cells) in the construction of which the active material is applied mechanically in the form of a paste.
6229	**GRID.**	Of an accumulator. The framework supporting the active material of a pasted plate.
6230	**PASTE.**	Of an accumulator. The active material of a pasted plate.
6231	**FORMED PLATE.** PLANTÉ PLATE.	Of an accumulator. A type of plate prepared by electrolytic action.
6232	**FORMATION.**	Of an accumulator plate. The electrolytic process by which the substance of a formed plate is electrolytically converted into active material.
6233	**GASSING.**	Of an accumulator. The evolution of gas which takes place in an accumulator towards the end of a charge.
6234	**SPRAY ARRESTER.**	Of an accumulator. A sheet of glass, ebonite or other suitable material, serving to prevent the escape of acid spray.

No.	TERM.	DEFINITION.
6235	**SULPHATING.**	In a lead accumulator. The formation on the plates of a variety of lead sulphate which is not easily reducible and which hinders the action of the cell.
6236	**BUCKLING.**	Of accumulator plates. The distortion caused by uneven expansion.
6237	**DEPOSIT.**	In a voltaic cell: The sediment which collects at the bottom, due to the gradual disintegration of the active material.
6238	**SEPARATOR.**	Of a voltaic cell. An insulating structure used to separate plates of opposite polarity and usually consisting of rods arranged vertically, or of a diaphragm, or of a combination of both.
6239	**DIAPHRAGM.**	Of an accumulator. A sheet of finely perforated or porous material used as a form of separator between plates of opposite polarity in an accumulator cell.
6240	**END SPRING.**	Of an accumulator. A spring of hard lead placed between the outer negative plates and the end of the containing box to keep the plates from spreading.
6241	**PLATE SUPPORT.** PLATE REST.	Of an accumulator. A support on which the plates rest and which is either separate from or forms part of the containing box.
6242	**BOTTOM BLOCK.**	Of an accumulator. A form of plate support consisting of strips of wood or other material separate from the containing case and supporting the plates at the bottom.
6243	**HANGER.**	A form of plate support consisting of plates of glass or other material standing on edge in such a way as to carry the accumulator plates by means of their supporting lugs.
6244	**LUG.**	Of an accumulator plate. A projection on the plate, serving as a means of connection or support.
6245	**TERMINAL BAR.** TERMINAL YOKE. CONNECTOR BAR.	Of an accumulator. A bar to which a group of plates of one polarity is attached.
6246	**TERMINAL LUG.**	Of an accumulator. A projection from, or prolongation of, the terminal bar serving to make connection to the external circuit.

SUB-SECTION 63. ELECTRO-METALLURGY (INCLUDING ELECTROPLATING, ELECTROTYPING AND ELECTROLYTIC REFINING).

No.	TERM.	DEFINITION.
6301	**ELECTRO-METALLURGY.**	The application of electricity to metallurgical operations.
6302	**ELECTRO-DEPOSITION.**	The deposition of a metal or a compound on an article by electrolytic action.
6303	**DEPOSIT.**	Electrolytic: A coating of metal (sometimes a compound such as an oxide) produced upon an electrode by electro-deposition.
6304	**ELECTRO-PLATING.**	The electro-deposition of comparatively thin films of metal for decorative or protective purposes.
6305	**ELECTROLYTIC REFINING.** ELECTRO-REFINING.	The refining of a metal by electrolytic solution and re-deposition.
6306	**ELECTRO-TYPING.** GALVANO-PLASTY. ELECTRO-FORMING, *U.S.A.*	The reproduction by electro-deposition of an exact facsimile of an irregular surface.
6307	**MATRIX.**	In electrotyping. A reverse mould of the object, upon which the reproduction is to be deposited.
6308	**NICKEL FACING.**	The process of coating the printing surfaces of stereotypes with nickel by electro-deposition.
6309	**STEEL FACING.**	The deposition of iron, usually on engraved copper plates, for printing purposes.
6310	**ELECTRO-GALVANISING.** COLD GALVANISING.	The deposition of zinc on iron or steel by electrolysis.
6311	**SIMPLE IMMERSION.**	The deposition of a thin film by an interchange of metal, without the application of an external E.M.F.
6312	**PLATINATING.**	The electro-deposition of platinum.
6313	**PLATINISING.**	The deposition of platinum by simple immersion.

No.	TERM.	DEFINITION.
6314	**METAL COLOURING.** BRONZING.	The production of coloured films of metals or their compounds on the surface of a metal, usually by chemical treatment.
6315	**METALLISING.**	The covering of the surface of a non-conductor with a film of metal or other conductor so as to admit of subsequent electro-deposition.
6316	**QUICKING.**	The deposition upon work, prior to silver plating, of a thin bright film of mercury by simple immersion.
6317	**REGULINE.**	A smooth coherent deposit of metal obtained by electrolytic means.
6318	**STOPPING-OFF.**	A term applied to the covering of a portion of a surface to prevent electro-deposition thereon.
6319	**PAROEL PLATING.**	The deposition of metals on parts of a piece of work, the remainder being stopped off with a non-conducting varnish.
6320	**THROWING POWER.**	The power of a depositing solution to give uniform deposits on irregular surfaces. It is more exactly defined as the ratio of the weight of metal deposited per unit of area to that which might be anticipated from the distance of that area from the anode.
6321	**STRIKING.**	The momentary deposition of metal at a rapid rate as a preliminary to longer and slower deposition.
6322	**SUPPLEMENTARY ANODES.**	Small anodes introduced near deeply recessed parts of work to assist striking and to ensure more uniform deposition.
6323	**STRIPPING.**	(*a*) The unintentional separation of a deposited metal from that on which the deposit was made. (*b*) The intentional removal of a deposit by chemical or electrolytic means.

No.	TERM.	DEFINITION.
6324	**CIRCULATION OF ELECTROLYTE.**	The movement (usually slow) of the solution in a single bath or through a series of baths, in order to maintain uniformity of composition.
6325	**AGITATION.**	A movement imparted to an electrolyte, usually in the direction of the cathode, in order to maintain a high metal content in the catholyte and thus increase the permissible rate of deposition.
6326	**AGEING OF SOLUTIONS.**	An improvement which occurs in the working condition of a metal-depositing solution after some use.
6327	**ADDITION AGENTS.**	Compounds which may be colloidal, reducing salts or even inorganic salts and which, added to metal-depositing solutions, markedly improve the character of the deposit; *e.g.*, peptone in a lead perchlorate bath and gelatine in a copper sulphate bath.
6328	**BUILDING UP.**	The deposition of layers of metal on worn parts of machinery, a slight excess of metal being deposited which is finally machined down to the required size.
6329	**DOCTORING.**	The local deposition of metal on imperfectly plated parts of an article.
6330	**DOCTOR.** DOLLY.	A device consisting of an anode in the form of a wire of the metal to be deposited, which is attached to a mop or sponge saturated with the solution. It is rubbed on the work to be plated, which is made the cathode.
6331	**BURNING.**	The formation of dark rough or powdery deposits due to too rapid deposition.
6332	**BRIGHT PLATING.**	The production of a bright silver deposit by the addition to an ordinary silver bath, of carbon disulphide (usually to an extent not exceeding 3 grains per gallon).

No.	TERM.	DEFINITION.
6333	**DIP.**	A liquid used for the chemical cleaning of metals prior to electro-deposition. It usually consists of an acid which serves to remove scale and tarnish.
6334	**BRIGHT DIP.**	A dip which, acting slowly, does not etch deeply into the metal and therefore leaves a bright surface.
6335	**CYANIDE DIP.**	A dip consisting of a solution of potassium cyanide (usually about 5 per cent.).
6336	**ACKEY.**	A colloquial term applied to a mixture of commercial sulphuric and nitric acids, used for cleaning copper, brass and similar metals.
6337	**PICKLE.**	A weak acid liquor, usually a worn and diluted dip, used for cleaning metals.
6338	**DRYING OUT.**	The removal of moisture from metal work by passing it through hot sawdust.
6339	**COLOURING.**	The production of a fine finish on gold, silver or other metal by polishing with rouge or lime.
6340	**POLISHING.**	The production of high lustre by mechanical processes yielding a surface layer of temporarily mobile metal.
6341	**BURNISHING.**	The imparting of a high polish to metal by rubbing with a smooth steel or agate tool, known as a **BURNISHER**, the prepared surface being thereby rendered more dense and durable.
6342	**MOP.**	A polishing wheel composed of layers of cloth firmly stitched together.
6343	**BOB.** *Ab'n. for Polishing Bob.*	A polishing wheel of solid felt or leather, or a wood disc edged with one of these materials.
6344	**BUFFING.**	A method of polishing metal with some form of bob or mop.
6345	**MOPPING.**	Buffing by means of a mop.
6346	**BOBBING.**	Buffing by means of a bob.
6347	**BRONZE POWDERS.**	Finely divided powders of various metals obtained by grinding.

No.	TERM	DEFINITION.
6348	**FROSTING.**	The imparting to a metal of a finely grained, sparkling, but slightly roughened surface.
6349	**LACQUERING.**	The application of a thin film of such materials as shellac or collodion to metals for the prevention of tarnishing, and on occasion to impart colour.
6350	**OXIDISING.**	A colloquial term applied to the production of decorative films of compounds (usually sulphides) on a metallic surface.
6351	**ANTIQUE SILVER.**	An effect produced on silver-plated goods by applying a thin coating of blacklead, ochre and turpentine, which coating is subsequently removed from the parts standing in relief.
6352	**GREEN GOLD.**	A deposit obtained from mixed solutions of gold and silver cyanides.
6353	**ROSE GOLD.**	A gold deposit containing copper and having a reddish colour.
6354	**METALLIC-CHROMES.**	The coloured effects produced on polished metals, especially iron and steel, by a deposition of lead peroxide of varying thicknesses.
6355	**WATER GILDING.**	The deposition of thin gold films by simple immersion.
6356	**WHITENING.**	The deposition of a white film of silver on metals by simple immersion.
6357	**COLLOIDS.**	Materials, the particles of which are large enough to be seen in the ultra-microscope, but too small to settle or to be filtered.
6358	**FREE CYANIDE.**	In a cyanide solution for electro-deposition. An excess of cyanide (other than that in combination with the metal) serving to prevent the formation of an insulating film of insoluble single cyanide at the anode.
6359	**CHEVREUL'S SALT.**	Cupric - cuprous - sulphite ($CuSO_3$. Cu_2SO_3. H_2O), a pink compound, which, dissolved in potassium cyanide, is used as a solution for the deposition of copper, chiefly upon base metals.

SECTION 7.

TRACTION.

Sub-Section 71. Track Construction.
72. Overhead Construction.
73. Vehicle Equipment.
79. Miscellaneous Terms.

SUB-SECTION 71. TRACK CONSTRUCTION.

No.	TERM.	DEFINITION.
7101	**CONDUCTOR RAIL.**	A rail used on electric railways for conducting current to or from a train. It is referred to as a **TOP CONTACT, SIDE CONTACT** or **UNDER CONTACT** rail, according to the surface on which the collector shoe runs. If there is one such rail in addition to the two track rails, it is known as the **THIRD RAIL.** If there are two such rails in addition to the two track rails, they are known as **THIRD** and **FOURTH RAILS.**
7102	**SPLICED CONDUCTOR RAIL.**	That portion of a conductor rail which terminates in a fork at a turn-out or crossing.
7103	**RAMP.**	Of a conductor rail. The terminating contact surface, so shaped as to lead the collector on to or off the conductor rail. It is known as a **LEADING RAMP** at the end where the collector makes contact, and as a **TRAILING RAMP** at the end where the collector breaks contact.
7104	**DEPRESSED CONDUCTOR RAIL.**	That portion of a conductor rail which is depressed so as not to touch the collector at points where contact is not desired.
7105	**CONDUCTOR RAIL ANCHOR.**	A device for anchoring a conductor rail to the earth to prevent longitudinal movement.
7106	**TRACK RETURN.**	The track rails when used as the negative or return conductor.

No.	TERM.	DEFINITION.
7107	**STUD.**	In a surface contact system, a metal contact piece which projects slightly above the surface of the road between the track rails and from which current is collected by means of a skate on the car.
7108	**BOND, TO**	To connect together electrically two rails or other conductors.
7109	**RAIL BOND.** *Bond.*	An electrical connection across a joint in or between adjacent lengths of rail.
7110	**CONDUCTOR BOND.**	A rail bond used for connecting together conductor rails at joints.
7111	**TRACK BOND.**	A rail bond used for connecting together track rails at joints.
7112	**CONTINUITY BOND.** JUMPER CABLE	A rail bond used for cross-connecting track rails at crossings or junctions.
7113	**CROSS BOND.**	A rail bond used for connecting together two rails of a track.
7114	**INTER-TRACK BOND.**	A rail bond used for connecting together the rails of adjacent tracks.
7115	**REACTANCE BOND.**	A rail bond used for connecting together two contiguous lengths of track rail through a reactor, special insulated fishplates being used at the joint to ensure the current passing through the reactor; this bond is used, for example, in track signalling.
7116	**CONDUCTOR RAIL INSULATOR.** THIRD (OR FOURTH) RAIL INSULATOR.	An insulator used for supporting the conductor rail.
7117	**TRACK JUMPER CABLE.**	An insulating cable serving to connect a conductor rail to a feeder.
7118	**POST HEAD.** TERMINAL PILLAR.	The terminal on a post or pillar at which a feeder is connected to a track jumper cable.
7119	**NEGATIVE FEEDER.** RETURN FEEDER.	A feeder connecting the track rails or negative conductor rail to the negative bus-bars at the sub-station or generating station.
7120	**GAUGE.**	The distance between the rails of a railway or of a tramway. In the case of a railway it is the distance between the inner sides of the heads of the rails. In the case of a tramway it is the distance between the inside edges of the tread of the rails, *i.e.*, over and including the grooves.

SUB-SECTION 72. OVERHEAD CONSTRUCTION.

No	TERM.	DEFINITION.
7201	**TROLLEY WIRE.**	An overhead conductor from which current can be collected by electrically-equipped vehicles.
7202	**CATENARY.**	In overhead construction. A suspended wire or cable from which a trolley wire is supported or hung.
7203	**DROPPER.**	A fitting used in a catenary overhead system for supporting the trolley wire from the catenary wire.
7204	**SIDE ANCHOR.** STEADY BRACE.	A device for anchoring the overhead conductor in a catenary construction in order to prevent lateral movement.
7205	**SAG.**	Of a suspended wire. The maximum vertical distance between the wire and the straight line joining the points of suspension.
7206	**GUARD WIRE.**	An earthed wire erected near a telegraph, telephone or other uninsulated wire, in such a position that a neighbouring live overhead conductor cannot come into accidental contact with the telegraph or other wire, without first becoming earthed by contact with the guard wire.
7207	**BULL RING.**	A metal ring used in overhead construction at the junction point of three or more straining wires.
7208	**EAR.**	A metal fitting clamped or soldered to a trolley wire for the purpose of suspending it.
7209	**STRAIGHT-LINE EAR.**	An ear for supporting a trolley wire on a straight track.
7210	**ANCHOR EAR.** STRAIN EAR.	An ear fitted with holes for the attachment of anchoring wires.
7211	**WHOLE-ANCHOR EAR.**	An anchor ear suitable for the attachment of two anchoring wires.
7212	**HALF-ANCHOR EAR.**	An anchor ear suitable for the attachment of one anchoring wire.
7213	**FEEDER EAR.**	An ear for making connection between the trolley wire and a feeder.
7214	**SPLICING EAR.**	An ear for joining two sections of trolley wire.

No.	TERM.	DEFINITION.
7215	**STRAIGHT-LINE HANGER.**	A fitting used in overhead construction for supporting a trolley wire from a transverse suspension wire and for insulating it therefrom.
7216	**CAR-SHED HANGER.** BRIDGE HANGER.	A fitting used for supporting the trolley wire in a car shed, a tunnel, or under a bridge, and comprising an insulated bolt and a metal clamp.
7217	**PULL-OFF.**	A metal fitting attached to an ear and used on curves for adjusting the position of a trolley-wire in a horizontal plane.
7218	**SINGLE PULL-OFF.**	A pull-off suitable for one supporting wire.
7219	**DOUBLE PULL-OFF.**	A pull-off suitable for two supporting wires.
7220	**TURNBUCKLE.**	A fitting provided with bolts having right and left-handed threads and serving to adjust the tension of a wire.
7221	**INSULATED TURNBUCKLE**	A turnbuckle insulated at one or both ends.
7222	**ROSETTE.**	A device for the attachment of an overhead suspension wire to a wall or structure.
7223	**OVERHEAD CROSSING.**	A metal fitting attached to the point of intersection of two trolley wires to form a crossing point for the trolley wheel.
7224	**FROG.**	A metal fitting uniting two diverging trolley wires with a single wire and arranged to guide the trolley wheel in the desired direction when passing from one wire to the other. The frog may be of the fixed type or may be provided with a movable tongue.
7225	**STRAIN INSULATOR.**	An insulator used for attachment to a wire under tension.
7226	**TERMINAL INSULATOR.**	A special strain insulator used on overhead construction at terminal points.

SUB-SECTION 73. VEHICLE EQUIPMENT.

No.	TERM.	DEFINITION.
7301	**DRIVING TRAILER.**	A vehicle, in a multiple-unit train, not equipped with motors but provided at one or both ends with a master controller and any other apparatus necessary for controlling the train.
7302	**TROLLEY.**	A device by means of which current is collected from a trolley wire and transmitted to the motors of an electrically-propelled vehicle. It includes the trolley wheel, head and pole, together with the standard or base.
7303	**TROLLEY STANDARD.** TROLLEY BASE.	An attachment to the top of a vehicle on which the trolley pole is so pivoted as to permit of free horizontal movement. It is provided with a spring or springs attached to the pole socket whereby the trolley wheel is pressed against the overhead conductor.
7304	**TROLLEY POLE.** TROLLEY BOOM.	A steel tube, one end of which carries the trolley head, the other being fixed to a socket arm on the trolley standard or base.
7305	**TROLLEY HEAD.**	A fitting carrying the trolley wheel and fixed to the trolley pole. It may be in electrical connection with or insulated from the trolley pole, and current may be conveyed to the electrical equipment either by the pole itself or by a cable inside the pole.
7306	**TROLLEY WHEEL.**	A metal wheel carried by the trolley head for maintaining rolling contact with the trolley wire.
7307	**TROLLEY SHOE.**	A metal shoe carried by a fitting attached to the trolley pole for maintaining a sliding contact with the trolley wire.
7308	**PANTOGRAPH.**	An approximately diamond-shaped frame mounted on the roof of an electric car or locomotive, in order to support a bow, to which it is designed to give free motion in a vertical plane, pressure against the overhead wire being maintained by springs or compressed air applied to the lower members of the frame.

No.	TERM.	DEFINITION.
7309	**BOW.** BOW COLLECTOR. BOW TROLLEY. BOW PANTOGRAPH.	A bow-shaped appliance attached to a trolley pole or pantograph for maintaining a sliding contact between an overhead conductor and the electric circuits on a vehicle.
7310	**COLLECTOR SHOE.**	A metal shoe for maintaining a sliding contact between a conductor rail and the electric equipment of a car or crane.
7311	**PLOUGH.**	A device for maintaining a sliding contact between the conductor in a conduit system and the electric equipment of a car.
7312	**SKATE.**	A device for maintaining a sliding contact between the studs of a surface contact system and the electrical equipment of a car.
7313	**COUPLER SOCKET.** RECEPTACLE.	A socket forming part of a device for readily connecting and disconnecting a cable between vehicles, and consisting of a socket carrying one or more metallic contacts, which engage with corresponding metallic contacts in a coupler plug.
7314	**COUPLER PLUG.** JUMPER HEAD.	A plug forming part of a device for readily connecting and disconnecting a cable between vehicles, and consisting of a plug carrying one or more metallic contacts, which engage with corresponding metallic contacts in a socket.
7315	**JUMPER.**	A removable, flexible, single or multicore cable connection provided at each end with coupler plugs and used for obtaining electrical continuity between conductors on adjacent vehicles.
7316	**JUMPER CABLE.**	Of an electric vehicle.. The cable joining the two coupler plugs of a jumper.
7317	**BUS LINE** TRAIN LINE.	A cable interconnecting collector shoes of like polarity throughout an electrically-operated train, the connection between the vehicles being effected by jumpers.

No.	TERM.	DEFINITION.
7318	**CONTROL LINE.** CONTROL CABLE.	A cable interconnecting master controllers and contactors throughout a train, the connection between the vehicles being effected by jumpers.
7319	**TRACK BRAKE.** SLIPPER BRAKE.	A brake in which a shoe or slipper is applied to the track rails by mechanical, pneumatic or magnetic means. See "Magnetic Braking," No. 7922.
7320	**REVERSER.**	A combination switch for changing the connections of traction motors in order to reverse their direction of rotation.
7321	**LINE BREAKER.**	A contactor fitted with overload tripping device so arranged as to operate as an overload circuit-breaker, and also as a line contactor, to open circuit every time the master controller is brought to the off position.
7322	**CONNECTION BOX.** CONNECTING BOX.	A box containing terminals to which conductors can be brought for distributing purposes.
7323	**NOSE SUSPENSION.**	A method of mounting traction motors on a truck by supporting one side on the axle by special suspension bearings, and the other side on the framework of the truck by a lug or nose projecting from the motor case.
7324	**BAR SUSPENSION.** YOKE SUSPENSION.	A method of mounting traction motors on a truck by supporting one side on the axle by special suspension bearings, and the other side by lugs projecting from the frame and bolted to a bar lying transversely across the truck, the bar being supported from the truck by springs.
7325	**CANOPY SWITCH.**	A switch suitable for mounting under the canopy of a vehicle.
7326	**GEARLESS MOTOR.**	A driving motor of which the armature is mounted directly on the driving axle, or is carried by a sleeve or quill which surrounds the axle with sufficient clearance, the torque being transmitted to the driving wheels through springs.

No.	TERM.	DEFINITION.
7327	**QUILL DRIVE.**	A form of drive in which the motor is geared to or directly connected to a hollow cylindrical sleeve or quill running in bearings, the quill being mounted concentrically with the driving axle and connected to the driving wheels by springs.
7328	**DEAD MAN'S HANDLE.**	A safety attachment to the handle of a controller, or to a brake valve, causing the current to be cut off, or the brakes to be applied, if the pressure of the driver's hand on the handle is released.

SUB-SECTION 79. MISCELLANEOUS TERMS.

No.	TERM.	DEFINITION.
7901	**CONDUCTOR RAIL SYSTEM.**	A system for supplying electric power to a vehicle by means of an insulated conductor rail or rails parallel to the track rails, contact being maintained by means of a collector shoe on the vehicle.
7902	**CONDUIT SYSTEM.** SLOT SYSTEM.	A system for supplying electric power to a vehicle by means of one or more conductors, carried underground in a conduit, contact being maintained by means of a plough on the vehicle passing through a slot in the roadway.
7903	**SURFACE CONTACT SYSTEM.**	A system for supplying electric power to a vehicle by means of studs placed between the track rails, which are made alive only when a car passes over them, contact being then made with the studs by a skate carried on the car.
7904	**TROLLEY SYSTEM.** OVERHEAD SYSTEM.	A system for supplying electric power to a vehicle by means of one or more overhead conductors, contact being maintained by a trolley wheel, shoe or bow mounted on the top of the vehicle.
7905	**TRACKLESS TROLLEY SYSTEM.** RAIL-LESS SYSTEM.	A trolley system in which electrically-equipped vehicles run on the ordinary roadway, the power supply being obtained from two overhead conductors, the one positive and the other negative.

No.	TERM.	DEFINITION
7906	**CATENARY SYSTEM.**	A system of overhead construction in which the overhead contact wire is supported along its length by droppers, which are suspended directly or indirectly from a catenary wire, the latter being carried by bracket arms, span wires or girders at intervals along the track.
7907	**SINGLE CROSS-SPAN SYSTEM.**	A system of overhead construction in which the overhead conductors are supported at intervals by transverse span wires stretched between poles or buildings.
7908	**CATENARY CROSS-SPAN SYSTEM.**	A system of overhead construction in which the overhead conductors are supported from two transverse span wires stretched between poles or buildings, and in which the upper, or catenary wire, carries part or the whole of the vertical load suspended from the lower span wire.
7909	**SIDE-BRACKET SYSTEM.**	A system of overhead construction in which the conductors are supported by bracket arms attached to poles on one side of the track.
7910	**CENTRE-BRACKET SYSTEM.**	A system of overhead construction in which poles are placed between the two tracks, each pole having an arm over each track to support the overhead conductor.
7911	**SERIES-PARALLEL CONTROL.**	A method of controlling D.C. motors whereby they are first connected in series and, when a sufficient speed has been obtained, are connected in parallel.
7912	**BRIDGE TRANSITION.** BRIDGE CONTROL.	A method of changing D.C. motors from series to parallel connection, without any break in the main circuit. The rheostats are first connected in parallel with the motors and the series connection is then opened.
7913	**SHORT-CIRCUIT TRANSITION.** SHORT-CIRCUIT CONTROL.	A method of changing D.C. motors from series to parallel connection, in which during the transition from series to parallel one motor is first short-circuited then open-circuited, and finally connected in parallel with the other motor.

No.	TERM.	DEFINITION.
7914	**FIELD CONTROL.**	A method of adjusting the speed of a motor by varying the excitation, this being effected either by shunting the series winding with a resistor or by cutting out some turns of the series winding.
7915	**SERIES-PARALLEL FIELD CONTROL.**	A method of controlling the speed of a motor, in which the fields are connected in two parallel branches for normal running and all in series for starting.
7916	**SERIES-PARALLEL BATTERY CONTROL.**	Of battery vehicles. A method of controlling the speed of motors in which the supply voltage is adjusted by connecting the cells of the battery in series-parallel combinations.
7917	**VARIABLE VOLTAGE CONTROL.**	A method of controlling the speed of motors in which the applied voltage is varied by means of a reversible booster, which may be semi-automatic or otherwise. This method is applicable whether the power is derived from an external source or from a self-contained battery.
7918	**CASCADE CONTROL.**	A method of controlling induction motors by electrically connecting the stator and rotor windings in such a way that two or more running speeds are obtained.
7919	**REGENERATIVE CONTROL.**	A system of control employing regenerative braking.
7920	**MULTIPLE-UNIT CONTROL**	A system of electric traction in which each pair or set of motors is provided with its own controlling apparatus and is considered as one unit, all such units throughout a train being controlled from any one of a number of points on the train by means of a master controller.
7921	**SEQUENCE TABLE.**	Of a traction control system. A table showing which contactors are closed at each stage of the starting operation.

No.	TERM.	DEFINITION.
7922	**MAGNETIC BRAKING.**	A system of braking in which track brakes are applied to the track rails by magnetic force, the current for exciting the electro-magnets being derived either from the car-motors, acting as generators, or from an independent source.
7923	**REGENERATIVE ELECTRIC BRAKING.**	A system of electric braking in which the motor is used as a generator, returning energy to the supply system, and thus exerting a retarding force.
7924	**RHEOSTATIC ELECTRIC BRAKING.**	A system of electric braking in which the motor is connected as a generator, dissipating energy in a rheostat, and thus exerting a retarding force.
7925	**RUN-BACK PREVENTER.**	A system of connections in a tramcar controller such that, in the event of a car running backwards, the motors act as short-circuited generators and thus exert a braking action.
7926	**FREE RUNNING SPEED.** BALANCE SPEED.	The speed attained by an electrically-equipped train or vehicle when the tractive effort of the motors, with all starting resistance cut out, is exactly balanced by the train or vehicle resistance.
7927	**TRACTIVE EFFORT.**	The total force exerted by the driving motors on an electrically-equipped vehicle, as measured at the rims of the driving wheels.
7928	**SECTION INSULATOR.**	An insulator used for dividing a conductor rail or trolley wire electrically into sections whilst maintaining mechanical continuity.
7929	**SECTION SWITCH.**	A switch used for connecting or disconnecting adjacent sections of conductor rail or trolley wire.

SECTION 8.

LIGHTING, HEATING AND DOMESTIC APPLIANCES.

Sub-Section 81. Illumination and Photometry.
82. Filament Lamps.
83. Arc Lamps and Other Lamps.
84. Parts of Lamps.
85. Heating and Cooking.
86. Fittings and Accessories.
87. Miscellaneous Domestic Appliances.

SUB-SECTION 81. ILLUMINATION AND PHOTOMETRY

No.	TERM.	DEFINITION.
8101	**LUMINOUS FLUX.**	The rate of passage of radiant energy evaluated by reference to the luminous sensation produced thereby. Symbol *F*.
8102	**LUMEN.**	A unit of luminous flux. It is equal to the flux emitted in unit solid angle by a uniform point source of one candle.
8103	**LUMINOUS INTENSITY.** CANDLE-POWER.	The luminous flux per unit solid angle, emitted by a point source in a given direction. Symbol *I*.
8104	**CANDLE-POWER.**	Luminous intensity expressed in candles.
8105	**MEAN SPHERICAL CANDLE-POWER.** *M.S.C.P.*	The average value of the candle-power of a luminous source in all directions. It is numerically equal to the total luminous flux in lumens divided by 4π.
8106	**MEAN ZONAL CANDLE-POWER.**	The average value of the candle-power in a given zone, the angular limits of the zone being stated.
8107	**MEAN HEMISPHERICAL CANDLE-POWER, UPPER OR LOWER.**	The average value of the candle-power in the upper or lower hemisphere.

No.	TERM.	DEFINITION.
8108	**MEAN HORIZONTAL CANDLE-POWER.**	The average value of the candle-power of a luminous source in all directions in a plane through the centre of the source and perpendicular to its axis.
8109	**CANDLE.** INTERNATIONAL CANDLE.	A unit of luminous intensity arrived at by common agreement between the National Physical Laboratory, of Great Britain, the Laboratoire Central de l'Electricité, of France, and the Bureau of Standards of the United States of America.
8110	**BOUGIE DECIMALE.** *b.d.*	The legal unit of luminous intensity in France, defined as one-twentieth of the luminous intensity, viewed normally of a square cm. of molten platinum at the temperature of solidification. This unit has a luminous intensity of one candle.
8111	**STANDARD SPERM CANDLE.** PARLIAMENTARY CANDLE.	An obsolete standard of luminous intensity, consisting of a sperm candle weighing $\frac{1}{8}$th of a pound, and burning 120 grains per hour.
8112	**VERNON-HARCOURT PENTANE LAMP.** PENTANE LAMP.	A wickless lamp burning pentane vapour and used as a standard of luminous intensity. As usually constructed, its luminous intensity under specified conditions of atmospheric pressure and humidity is 10 candles.
8113	**CAROEL LAMP.**	A flame lamp burning colza oil. Its luminous intensity under specified conditions is 9·6 candles. It is now little used.
8114	**HEFNER LAMP.**	A flame lamp burning amyl-acetate. Its luminous intensity, under specified conditions of atmospheric pressure and humidity, is the official unit in Germany. This unit is known as the **HEFNER CANDLE** and is taken as being equivalent to 0·9 Candles.
8115	**REDUCTION FACTOR.** *Ab'n for Spherical Reduction Factor.*	Of a luminous source. The ratio of the mean spherical to the mean horizontal candle-power of the source.
8116	**ILLUMINATION.**	The luminous flux reaching a surface per unit area. Symbol E.

No.	TERM.	DEFINITION.
8108	**MEAN HORIZONTAL CANDLE-POWER.**	The average value of the candle-power of a luminous source in all directions in a plane through the centre of the source and perpendicular to its axis.
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8116	**ILLUMINATION.**	The luminous flux reaching a surface per unit area. Symbol *E*.

No.	TERM.	DEFINITION.
8117	**LUX.** METRE-CANDLE.	A unit of illumination. It is the illumination produced on the surface of a sphere having a radius of one metre, by a uniform point source of one candle situated at its centre. It corresponds to a flux density of one lumen per square metre. One lux equals 0·093 foot-candles.
8118	**FOOT-CANDLE.** CANDLE-FOOT, *deprecated.*	A unit of illumination. It is the illumination produced on the surface of a sphere having a radius of one foot, by a uniform point source of one candle situated at its centre. It corresponds to a flux density of one lumen per square foot. One foot-candle equals 10·764 lux.
8119	**PHOT.**	A unit of illumination which is little used. It corresponds to a flux of one lumen per square centimetre. 1 phot = 10,000 lux.
8120	**BRIGHTNESS.** INTRINSIC BRILLIANCY, SURFACE BRIGHTNESS.	Of a surface. The quotient of the luminous intensity in a given direction by the area of the surface projected on to a plane perpendicular to that direction. Symbol B.
8121	**LAMBERT,** *U.S.A.*	A unit of brightness. The brightness of a perfectly diffusing surface emitting or reflecting one lumen per square centimetre. For most purposes the **MILLILAMBERT** (0·001 lambert), is of more convenient magnitude. One lambert equals $\frac{1}{\pi}$ (*i.e.*, 0·318) candles per square centimetre.
8122	**VISIBILITY FACTOR.**	The ratio of the luminous flux, of given wave-length, to the energy flux. Symbol K.
8123	**EFFICIENCY.**	Of a luminous source. The ratio of the total luminous flux emitted to the total power consumed. In the case of an electric lamp it is expressed in lumens per watt. In the case of a source depending on combustion it may be expressed in lumens per thermal unit per unit of time.

No.	TERM.	DEFINITION.
8124	**REFLECTION FACTOR.** COEFFICIENT OF REFLECTION.	The ratio of the reflected luminous flux to the incident luminous flux. Symbol ρ The factor may refer to the luminous flux specularly reflected, as from a polished surface (**SPECULAR REFLECTION FACTOR**) or to that diffusely reflected (**DIFFUSE REFLECTION FACTOR**) or to the total luminous flux reflected (**TOTAL REFLECTION FACTOR**).
8125	**ABSORPTION FACTOR.** COEFFICIENT OF ABSORPTION.	The ratio of the luminous flux absorbed to the incident luminous flux. Symbol α
8126	**TRANSMISSION FACTOR.** COEFFICIENT OF TRANSMISSION.	The ratio of the luminous flux transmitted to the incident luminous flux. Symbol τ
8127	**LIFE TEST.**	Of a luminous source. A continuous running test for a stated period (usually 1,000 hours), during which measurements of candle-power and consumption are made at intervals.
8128	**PHOTOMETER.**	A piece of apparatus for the measurement of luminous intensity, luminous flux, illumination or brightness by comparison with a standard.
8129	**PHOTOMETER HEAD.**	That portion of a photometer in which the photometric comparison is effected.
8130	**PHOTOMETRIC INTEGRATOR.**	A piece of apparatus enabling the total luminous flux emitted by a light source to be determined at a single measurement by means of a photometer. The integrator usually takes the form of a spherical or cubical enclosure, the interior surface being white.
8131	**INTEGRATING PHOTOMETER.**	A piece of apparatus consisting of a photometric integrator combined with a photometer.
8132	**PRIMARY LUMINOUS STANDARD.**	A recognised standard of luminous intensity reproducible from a specification.

No.	TERM.	DEFINITION.
8133	**STANDARD LAMP.** SECONDARY STANDARD LAMP.	A lamp the luminous intensity of which is accurately known in terms of the National Standards.
8134	**WORKING STANDARD LAMP.** STANDARD LAMP.	A lamp the luminous intensity of which is known with sufficient accuracy for industrial purposes.
8135	**COMPARISON LAMP.**	A lamp of constant, but not necessarily known, luminous intensity with which a standard lamp and the lamp under test are successively compared by means of a photometer.
8136	**TEST SURFACE.**	In photometry. A prepared surface which is illuminated by the luminous source or sources under test.
8137	**COMPARISON SURFACE.**	In photometry. A prepared surface which is illuminated by the standard or comparison lamp.
8138	**REDUCING SCREEN.**	In photometry. A transparent screen serving to transmit a pre-determined fraction of the luminous flux reaching it.
8139	**REDUCING SURFACE.**	In photometry. A prepared surface serving to reflect a pre-determined fraction of the luminous flux reaching it.
8140	**WINDOW EFFICIENCY RATIO.** DAYLIGHT FACTOR.	The ratio of the illumination measured on a horizontal plane at a given point inside a building, to that outside the building assuming an unobstructed hemisphere of sky, the two being measured simultaneously.
8141	**SILL RATIO.**	The ratio of the illumination measured on a horizontal plane at a given point inside a building, to that on the window-sill outside, assuming an unobstructed quarter sphere of sky, the two being measured simultaneously.
8142	**VARIATION FACTOR.**	Of illumination over a given plane. The ratio of the maximum illumination to the average illumination over that plane.
8143	**VARIATION RANGE.**	Of illumination over a given plane. The ratio of the maximum illumination to the minimum illumination over that plane.

No.	TERM.	DEFINITION.
8144	**DIRECT LIGHTING.**	A system of lighting in which the greater part of the luminous flux, after leaving the fitting, passes directly towards the area to be illuminated.
8145	**INDIRECT LIGHTING.**	A system of lighting in which the greater part of the luminous flux only reaches the area to be illuminated after reflection from a ceiling or other object external to the fitting.
8146	**SEMI-INDIRECT LIGHTING.**	A system of lighting which combines the features of Direct and Indirect Lighting, the latter predominating.
8147	**DIFFUSED LIGHTING.**	A system of lighting in which the luminous flux, after passing through a diffusing medium, reaches the area to be illuminated, in part directly and in part indirectly.
8148	**FLOOD LIGHTING.**	A system of lighting for the general illumination of a large object to a comparatively uniform brightness by means of a beam or beams of light projected from a distance.
8149	**SPOT LIGHTING.**	A system of lighting, for the localised illumination of an object or part of an object to a brightness considerably greater than that of its surroundings, by means of a beam or beams of light projected from a distance.
8150	**STRIP LIGHTING.**	A system of lighting in which a number of lamps, usually of tubular form, and installed in line with one another, so as to give the impression of a more or less continuous strip of light.
8151	**FESTOON LIGHTING.** STRIP LIGHTING, *deprecated.*	A system of lighting in which a number of lamps are wired to a flexible cable suitable for festooning in gardens or on Christmas trees, etc.

No	TERM.	DEFINITION.
8152	**ANGLE OF OUT-OFF.**	Of a fitting, shade or reflector. The largest angle below the horizontal at which the light source is invisible when viewed from a point outside the reflector.
8153	**DAYLIGHT LAMP.**	A lamp giving light of such a spectral distribution that objects illuminated by it appear to be of the same colour as when illuminated by daylight.

SUB-SECTION 82. FILAMENT LAMPS.

No.	TERM.	DEFINITION.
8201	**FILAMENT LAMP.** INCANDESCENT LAMP. GLOW LAMP. BULB, *colloquial.*	An electric lamp in which a metal, carbon, composite or other filament is rendered incandescent by the passage of an electric current.
8202	**VACUUM LAMP.** *Ab'n for Vacuum Filament Lamp.*	A filament lamp in which the filament is mounted in a vacuum.
8203	**GASFILLED LAMP.** *Ab'n for Gasfilled Filament Lamp.*	A filament lamp in which the filament is surrounded by an inert gas.
8204	**CARBON FILAMENT LAMP.** *Carbon Lamp.*	A filament lamp in which the filament is composed of carbon.
8205	**METAL FILAMENT LAMP.**	A filament lamp in which the filament is composed of a metal.
8206	**TUNGSTEN FILAMENT LAMP.** *Tungsten Lamp.*	A metal filament lamp in which the filament is composed of tungsten.
8207	**PROJECTOR-TYPE FILAMENT LAMP.**	A filament lamp in which the filament is arranged in concentrated form for focussing purposes.
8208	**BATTERY LAMP.**	A filament lamp, usually of 16 volts or under, intended for use with a battery.
8209	**FLASH LAMP.**	A filament lamp, usually of 5 volts or under, intended for intermittent use with a battery.

No.	TERM.	DEFINITION.
8210	**TUBULAR LAMP.**	A filament lamp having the bulb in the form of a tube.
8211	**CANDLE LAMP.**	A filament lamp intended for use with an artificial candle.
8212	**FLAME LAMP.**	A filament lamp having the bulb in the form of a flame.
8213	**FROSTED LAMP.**	A filament lamp, the bulb of which is etched or sand-blasted so as to enlarge the source of light with a consequent reduction in surface brightness, and the elimination of irregularities in the distribution of the light. Lamps may be wholly or partially frosted.
8214	**OPAL LAMP.**	A filament lamp, the bulb of which is made of opalescent glassware so as to enlarge the source of light with a consequent reduction in surface brightness, and the elimination of irregularities in the distribution of the light. Lamps may be wholly or partially opal.
8215	**SPRAYED LAMP.**	A filament lamp, the bulb of which is sprayed with a white or coloured material which serves to diffuse the light.
8216	**LIGHT CENTRE LENGTH.**	The distance from the geometrical centre of the filament to the contact plate or plates at the end of the lamp cap remote from the bulb.

SUB-SECTION 83. ARC LAMPS AND OTHER LAMPS.

No.	TERM.	DEFINITION.
8301	**CARBON ARC.**	Unless further qualified, an arc maintained between electrodes of carbon which contain no addition intended to colour or render luminous the arc flame.
8302	**OPEN ARC.**	A carbon arc maintained under conditions which allow free access of air, any enclosure being merely for the purpose of shielding the arc from draughts.

No.	TERM.	DEFINITION.
8303	**ENCLOSED ARC.**	A carbon arc maintained in a translucent enclosure designed to reduce to a minimum the access of air, so that the arc burns in an atmosphere of the products of combustion.
8304	**FLAME ARC.**	An arc maintained between carbon electrodes to which have been added ingredients which have the effect of colouring and rendering luminous the arc flame.
8305	**OPEN FLAME ARC.**	A flame arc maintained under conditions which allow free access of air, any enclosure being merely for the purpose of shielding the arc from draughts.
8306	**ENCLOSED FLAME ARC.**	A flame arc maintained in a translucent enclosure designed to reduce to a minimum the access of air so that the arc is maintained in an atmosphere of the products of combustion.
8307	**ARC LAMP.**	An electric lamp in which the light is obtained from an electric arc and/or from the incandescent electrodes between which it is generated, the gas surrounding the electrodes being substantially at atmospheric pressure.
8308	**TUNGSTEN ARC LAMP.**	An arc lamp in which the electrodes are of tungsten and in which practically the whole of the useful light is emitted from these electrodes, rendered incandescent by the discharge.
8309	**NERNST LAMP.**	An electric lamp in which a rod of refractory earth, which becomes a conductor when hot, is rendered incandescent by the passage of an electric current.
8310	**GAS DISCHARGE LAMP.**	An electric lamp comprising a translucent bulb or tube containing a gas at a low pressure and fitted with electrodes between which (when a sufficient voltage is applied to them) a luminous discharge of electricity takes place through the gas, the useful light coming mainly from the gas.

No.	TERM.	DEFINITION.
8311	**MERCURY DISCHARGE LAMP.** MERCURY VAPOUR LAMP.	A gas discharge lamp in which the discharge takes place through mercury vapour.
8312	**MOORE LAMP.**	A gas discharge lamp in which the discharge takes place through some gas or vapour other than the rare gases or mercury.
8313	**NEON LAMP.**	A gas discharge lamp in which the discharge takes place through a mixture of gases containing a large proportion of neon.

SUB-SECTION 84. PARTS OF LAMPS.

No.	TERM.	DEFINITION.
8401	**FILAMENT.**	A thread-like conductor, usually of carbon or metal, which is rendered incandescent by the passage of an electric current.
8402	**BULB.**	The glass container enclosing the filament of a filament lamp.
8403	**PIPLESS BULB.**	A bulb so manufactured that no sealing-off tip remains on the visible surface of the glass.
8404	**GLASS SUPPORT ROD.**	The glass rod carrying the filament support or supports.
8405	**LEADING-IN WIRES.**	(*a*) In a filament lamp. The wires conducting the current from the cap contacts to the filament. (*b*) In a gas discharge lamp. The wires conducting the current from the cap contacts to the electrodes.
8406	**SEAL.**	The joint through which the leading-in wires pass into the bulb.
8407	**SEALING-IN JOINT.**	The joint in the glass, sealing a flanged glass tube which carries the leading-in wires, to the bulb.
8408	**SUPPORT WIRE.**	A wire used for anchoring the filament and so preventing undue vibration,

No.	TERM.	DEFINITION.
8409	**LAMP CAP.** *Cap.*	The terminal base of a filament or gas discharge lamp.
8410	**SHELL.**	Of a lamp cap. The metal cylinder forming the body of the cap.
8411	**BAYONET CAP.**	A lamp cap comprising a cylindrical outer wall, which carries two pins for engaging in slots in a lamp holder. As ordinarily understood, a bayonet cap is a cap having a prescribed diameter of about $\frac{7}{8}$ inch and carrying two contacts insulated from each other and from the outer wall.
8412	**SMALL BAYONET CAP.**	A bayonet cap having a prescribed diameter of about $\frac{5}{8}$ inch and generally used for candle, battery or automobile lamps.
8413	**CENTRE-CONTACT CAP.** *Ab'n. for Centre-Contact Bayonet Cap.*	A bayonet cap in which the outer wall forms one of the contacts, while a central projection forms the other contact. As ordinarily understood, a centre-contact cap is a cap having a prescribed diameter of $\frac{7}{8}$ inch.
8414	**SMALL CENTRE-CONTACT BAYONET CAP.**	A centre-contact cap having a prescribed diameter of $\frac{5}{8}$ inch.
8415	**EDISON SCREW CAP.**	A lamp cap in which the outer wall takes the form of a coarse screw thread and forms one of the contacts, while a central projection forms the other contact. As ordinarily understood, an Edison screw cap is a cap in which the screw thread has a prescribed diameter of about 1 inch and a prescribed pitch of about 8 threads per inch.
8416	**GOLIATH EDISON SCREW CAP.**	An Edison screw cap in which the screw thread has a prescribed diameter of about $1\frac{1}{2}$ inches and a prescribed pitch of about 4 threads per inch.

No.	TERM.	DEFINITION.
8417	**SMALL EDISON SCREW CAP.**	An Edison screw cap in which the screw thread has a prescribed diameter of about $\frac{1}{2}$ inch and a prescribed pitch of about 10 threads per inch.
8418	**MINIATURE EDISON SCREW CAP.**	An Edison screw cap in which the screw thread has a prescribed diameter of about $\frac{3}{8}$ inch and a prescribed pitch of about 16 threads per inch.
8419	**ARC LAMP CARBON.** *Carbon.*	A carbon rod intended to form an electrode of a carbon arc lamp.
8420	**SOLID CARBON.**	An arc lamp carbon of homogeneous composition throughout.
8421	**PURE SOLID CARBON.**	A solid carbon of pure or practically pure carbon.
8422	**IMPREGNATED CARBON.**	An arc lamp carbon which consists of carbon intimately mixed with some other material, such admixture being usually, but not necessarily, for the purpose of producing a flame arc.
8423	**CORED CARBON.**	An arc lamp carbon having one or more longitudinal canals filled with a mixture designed to have specific effects on the arc.
8424	**CORE.**	Of an arc lamp carbon. The longitudinal filling of a cored carbon.
8425	**PLAIN-CORED CARBON.**	A cored carbon in which the filling of the canal consists of a material intended simply to steady and increase the conductivity of the arc.
8426	**FLAME-CORED CARBON.**	A cored carbon in which the filling of the canal consists of a material designed to colour and render luminous the arc flame.
8427	**SOLID-CORED CARBON.**	A cored carbon in which the filling of the canal consists of a solid carbon rod which may be either pure or impregnated.

No.	TERM.	DEFINITION.
8428	**METAL-CORED CARBON.**	A cored carbon having a fine metal wire running in a longitudinal canal, for the purpose of increasing the conductivity. The canal may be either the main canal of a cored carbon or a special canal for containing the wire.
8429	**COPPER-CORED CARBON.**	A solid-cored carbon in which the solid carbon core is coated with a sheath of copper.
8430	**COPPERED CARBON.**	A carbon coated externally with a sheath of copper.

SUB-SECTION 85. HEATING AND COOKING.

No.	TERM.	DEFINITION.
8501	**HOT PLATE.**	An appliance fitted with sufficient electric heating elements to keep food hot after cooking.
8502	**OPEN-TYPE HOT PLATE.**	A hot plate in which the heating elements are exposed to the atmosphere.
8503	**BOILING PLATE.**	An appliance fitted with sufficient electric heating elements to boil water or food contained in a flat bottomed utensil placed thereon.
8504	**OPEN-TYPE BOILING PLATE.**	A boiling plate in which the heating elements are exposed to the atmosphere.
8505	**BOILING TABLE.**	A metal framework, fitted with more than one boiling plate.
8506	**COOKING SPACE.**	That portion of the enclosure, of an oven or grill, not taken up by the heating elements or protecting screens.
8507	**HEATING RESISTOR.**	The wire or other material used as a source of heat in hot plates, boiling plates or heating elements.
8508	**HEATING ELEMENT.**	The complete resistor, including the element carrier on which it is wound, as used in ovens, electric fires, radiators, etc.

No.	TERM.	DEFINITION.
8509	**ELEMENT CARRIER.**	A refractory substance on which the heating resistor is wound or fixed.
8510	**FIRE BARS.**	The heating elements, including the element carriers, as fitted to an electric fire or radiator.
8511	**REFLECTOR.**	A device, generally constructed of bright metal, so fitted to electrical heating apparatus as to direct the heat from the elements in any given direction.
8512	**CLAMPING PLATES.**	Plates used in the construction of hot plates or boiling plates to ensure that the elements come into close contact with the hot plate itself.

SUB-SECTION 86. FITTINGS AND ACCESSORIES.

No.	TERM.	DEFINITION.
8601	**CONDUIT.**	Tubing intended to carry and protect insulated electric cables and wires.
8602	**PLAIN STEEL CONDUIT.** *Plain Conduit.*	A conduit consisting of light-gauge steel tubing (close jointed, brazed, welded or solid drawn), the ends of which are not screwed.
8603	**SCREWED STEEL CONDUIT.** *Screwed Conduit.*	A conduit consisting of heavy-gauge steel tubing (brazed, welded or solid drawn), the ends of which are screwed for connection to fittings and adjacent lengths of conduit. As usually constructed it has a special form of thread known as the **ELECTRICAL THREAD.**
8604	**CONTINUITY FITTING.**	A device for securing electrical continuity between adjacent lengths of plain conduit or between conduit and conduit fittings, thus ensuring metallic connection throughout the system and providing for efficient earthing.

No.	TERM.	DEFINITION.
8605	**CONDUIT FITTINGS.** *Fittings.*	A general term applied to all the items necessary for the completion of a conduit system, such (for example) as boxes, elbows, tees, bends, etc., and also boxes in or upon which are mounted electrical accessories.
8606	**COUPLER.**	A short length of tubing serving to connect the ends of two adjacent lengths of conduit, which are in line.
8607	**PLAIN COUPLER.** SLEEVE.	A coupler without threads serving to connect the ends of two adjacent lengths of plain conduit.
8608	**SCREWED COUPLER.** SCREWED SOCKET.	A threaded coupler serving to connect the ends of two adjacent lengths of screwed conduit.
8609	**RUNNING COUPLER.**	A short length of screwed conduit fitted with a screwed coupler for connection to a piece of screwed conduit, which cannot be rotated.
8610	**BEND.**	A short length of tubing serving to connect the ends of two adjacent lengths of conduit which are at an angle to one another.
8611	**ELBOW.** SHARP BEND.	A bend of short radius serving to connect two lengths of conduit, which are at an angle of 90 degrees.
8612	**NORMAL BEND.**	A bend having a longer radius than an elbow, and serving to connect two lengths of conduit, which are at an angle of 90 degrees.
8613	**HALF-NORMAL BEND.**	A bend serving to connect two lengths of conduit, which are at an angle of 135 degrees.
8614	**TEE.**	A coupler with an additional opening serving to connect three adjacent lengths of conduit, two being in line and one at an angle of 90 degrees thereto.
8615	**CONDUIT BOX.**	A box adapted for connection to conduit, either plain or screwed, to form a base for mounting accessories such as switches or ceiling roses, and also to take the place of bends, elbows or tees, when necessary to facilitate wiring.

No.	TERM.	DEFINITION.
8616	**INSPECTION FITTING.**	A bend, elbow or tee provided with a removable cover to facilitate wiring and inspection.
8617	**SPLIT FITTING.**	A bend, elbow or tee split longitudinally so that it can be placed in position after the wires have been drawn in to the conduit, the two parts being held together by screws or other device.
8618	**WOOD CASING.**	Strips of wood suitably grooved for the reception of insulated electric cables and wires, and provided with a wooden cover or **CAPPING**, the whole serving to carry and protect the cables and wires.
8619	**INSULATED SCREW-EYE.**	A screw terminating in an insulated eye through which flexible cords or wires may be run and supported.
8620	**INSULATED CLIP.**	A clip terminating in an insulated eye through which flexible cords or wires may be run and supported.
8621	**INSULATED HOOK.**	A hook terminating in an insulated eye through which flexible cords or wires may be run and supported.
8622	**STRAIGHT-THROUGH JOINT.**	A joint used for connecting in series two lengths of conductor or cable.
8623	**TEE JOINT.**	A joint used for connecting a branch conductor or cable to a main conductor or cable, where the latter continues beyond the branch.
8624	**LOOPING-IN.**	In wiring. A method of avoiding tee joints by carrying the conductor to and from the point to be supplied.
8625	**DISTRIBUTION BOARD.** DISTRIBUTING BOARD, DISTRIBUTION BOX.	An assembly of small bus-bars with or without disconnecting links, switches, fuses or the like for connecting, controlling or protecting, as the case may be, a number of branch circuits fed from a main circuit.
8626	**DISTRIBUTION FUSE-BOARD.** CUT-OUT BOARD. SECTION FUSE-BOARD.	A distribution board comprising a fuse or fuses for each of the branch circuits.
8627	**DISTRIBUTION SWITCHBOARD.**	A distribution board comprising a fuse or fuses, with a switch or switches for each of the branch circuits.

No.	TERM.	DEFINITION
8628	**POINT.** OUTLET, *U.S.A.*	In wiring. The termination of the wiring intended for attachment to a fitting for one or more lamps or other consuming devices.
8629	**FITTING.** LUMINAIRE, *U.S.A.*	An appliance for supporting or containing a lamp together with its holder and shade or reflector, such as a bracket, pendant with ceiling rose, electrolier, or portable standard.
8630	**ACCESSORY.**	An appliance other than a fitting, associated with the wiring, fittings, and consuming devices of an installation; such as a small switch, cut-out, plug or socket.
8631	**CEILING ROSE.**	An enclosure of china, porcelain or other insulating material, fitted with terminals and intended for connecting the flexible cord carrying a pendant to the wiring of an electric installation.
8632	**CEILING PLATE.**	A metal plate usually fitted with a hook or cord grip, behind which is made the connection between the flexible cord of a pendant fitting and the wiring of the electric installation.
8633	**PLUG AND SOCKET.**	A device, consisting of two portions, for easily connecting and disconnecting portable apparatus and the wiring of an electrical installation. The plug carries two or more metallic contacts, which fit into corresponding metallic contacts in the socket.
8634	**WALL PLUG AND SOCKET.**	A plug and socket, the socket portion of which is so designed as to be suitable for fixing to a wall or other flat surface.
8635	**BRANCH SWITCH.**	A generic term applied to any type of switch intended for controlling the current in a branch circuit which feeds a lamp or group of lamps or other electrical apparatus.

No.	TERM.	DEFINITION.
8636	**TUMBLER SWITCH.**	A quick-break switch, operated by a lever handle pivoted on the face of the switch and rocking in a plane perpendicular thereto. It is usually of small dimensions and suitable for dealing with small amounts of power only.
8637	**TURN SWITCH.**	A switch operated by a handle pivoted in the face of the switch and turning backwards and forwards.
8638	**ROTARY SWITCH.**	A switch operated by a rotatable handle pivoted in the face of the switch and capable of revolving in one direction only.
8639	**FLUSH SWITCH.** PANEL SWITCH, RECESSED SWITCH, SUNK SWITCH.	A switch fitted with a switch plate and suitable for mounting flush with the surface of a wall.
8640	**SEMI-RECESSED SWITCH.**	A switch having the base suitably formed for recessing partially into a wall or other support.
8641	**SHOCK-PROOF SWITCH.** HOME OFFICE SWITCH. ALL-INSULATED SWITCH.	A switch having all external metallic parts covered or protected by insulating material.
8642	**EARTHED SWITCH.** HOME OFFICE SWITCH.	A switch with suitable provision for earthing all exposed metallic parts.
8643	**DETACHABLE KEY SWITCH.** LOOSE KEY SWITCH.	A switch operated by a detachable key or handle.
8644	**LOCKED COVER SWITCH.** LOCKING SWITCH, SECRET SWITCH, ASYLUM SWITCH.	A switch having the cover secured by a locking key.
8645	**TROPICAL SWITCH.** FEET SWITCH.	A switch having feet or bosses so arranged as to provide an air space between the base and the mounting surface as a safeguard in excessively damp climates.
8646	**LANDING SWITCH.** TWO-WAY SWITCH.	A single-pole change-over switch without "off" position, generally used where it is desired to control a circuit from two or more positions.
8647	**INTERMEDIATE SWITCH.** REVERSING SWITCH WITHOUT "OFF" POSITION.	A switch for controlling a circuit where more than two positions of control are required. So called because it occupies an intermediate position between the two landing switches used in conjunction therewith.

No.	TERM.	DEFINITION.
8648	**SERIES-PARALLEL SWITCH.**	A two-position switch giving series connections in one position and parallel connections in the other position.
8649	**DOOR SWITCH.**	A switch designed for mounting on or in the frame of a door so that the opening and closing of the door operates the switch.
8650	**PUSH-BUTTON SWITCH.** BUTTON SWITCH.	A switch operated by a push button or buttons.
8651	**CEILING SWITCH.** PULL SWITCH.	A switch intended to be mounted on the ceiling of a room and operated by a cord.
8652	**PENDANT SWITCH.** PRESSEL SWITCH, PEAR SWITCH, SUSPENSION SWITCH.	A switch for attachment to the end of a flexible cord.
8653	**SNAP SWITCH.** QUICK-MAKE-AND-BREAK SWITCH.	A switch which makes and breaks the circuit with a quick snap by means of a blade or blades whose rate of motion, while the switch is actually making or breaking the circuit, is independent of the action of the operator.
8654	**LINKED SWITCHES.** COUPLED SWITCHES.	Switches linked together mechanically so as to operate simultaneously, or in definite sequence.
8655	**SWITCH SOCKET.** SOCKET SWITCH, SWITCH PLUG.	A wall plug and socket combined with a switch.
8656	**SWITCH PLATE.** FLUSH PLATE.	A plate for covering a flush switch or switches.
8657	**BLADE.**	Of a switch. The moving part which makes contact with the contact jaw in closing the circuit.
8658	**CONTACT JAW.**	Of a switch. A fixed part with which a blade makes contact in closing the circuit.
8659	**PENDANT.**	A fitting which is suspended either by means of the flexible cord carrying the current, or otherwise.
8660	**RISE-AND-FALL PENDANT.**	A pendant the height of which can be regulated by means of a pulley and counterweight or similar device which adjusts the pendant length of the flexible cord.

No.	TERM.	DEFINITION.
8661	**CORD SHORTENER.**	A device for altering the pendant length of the flexible cord of a pendant.
8662	**ELECTROLIER.**	A term applied to the more elaborate forms of multi-lamp pendants.
8663	**FACTORY FITTING.** MILL FITTING.	A fitting in which the lamp is housed in a strong protecting glass globe.
8664	**BULKHEAD FITTING.** OYSTER FITTING.	A specially robust form of fitting primarily designed for attachment to bulkheads, deck heads, etc., where space is restricted.
8665	**INDUSTRIAL REFLECTOR.**	A lamp shade whitened or polished internally, and so shaped that, when provided with a lamp holder, it constitutes a fitting suitable for industrial lighting.
8666	**HAND LAMP.** PORTABLE LAMP. INSPECTION LAMP.	A portable fitting for inspection purposes suitable for carrying in the hand.
8667	**FLASH LAMP.**	A hand lamp fitted with a battery, and suitable for intermittent use only.
8668	**MINER'S LAMP.**	A hand lamp fitted with a battery, and of robust construction suitable for use in mines.
8669	**PORTABLE STANDARD.**	A portable fitting suitable for standing either on a table (**TABLE STANDARD**) or on the floor (**FLOOR STANDARD**).
8670	**LAMP HOLDER.** *Holder.* LAMP SOCKET.	An accessory by means of which a filament lamp is connected to the source of supply. Lamp holders suitable for use with lamps having particular forms of cap, are distinguished from one another by the appropriate prefix, e.g., Bayonet Lamp Holder or Edison Screw Lamp Holder.
8671	**LOCKING LAMP HOLDER.**	A lamp holder fitted with a device for locking the lamp in position in the holder.
8672	**SWITCH LAMP HOLDER.** KEY HOLDER. KEY SOCKET.	A lamp holder with a switch embodied therein.

No.	TERM.	DEFINITION.
8673	**SHADE CARRIER RING.**	An attachment, usually a screwed ring, by means of which a shade, shade carrier or gallery is secured to a lamp holder.
8674	**CORD GRIP.**	A device by means of which the flexible cord entering a lamp holder or other accessory is gripped, in order to prevent the conductor being pulled away from the terminal.
8675	**BINDING SCREW.** TERMINAL SCREW. CLAMPING SCREW.	A screw for holding a conductor to the terminal of a switch, ceiling rose, lamp holder or other electrical apparatus.
8676	**BACKPLATE LAMP HOLDER.** BATTEN HOLDER	A lamp holder fitted with a plate suitable for screwing on to a flat surface.
8677	**PLUG ADAPTOR.** LAMP HOLDER PLUG.	A device for electrically connecting apparatus to a lamp holder.
8678	**GALLERY.**	A device for attachment to a lamp holder and serving to carry a shade, globe or reflector which cannot be carried by the shade carrier ring.
8679	**FLASHER.**	A device for rapidly and automatically lighting and extinguishing electric lamps, usually for advertising purposes, and operated by mechanical, thermal or similar means.

SUB-SECTION 87. MISCELLANEOUS DOMESTIC APPLIANCES.

No.	TERM.	DEFINITION.
8701	**ELECTRIC BELL,** *Bell.*	A signalling device in which a hammer is actuated electro-magnetically so as to strike a gong or bell.
8702	**BUZZER.**	A signalling device similar to an electric bell, but without hammer or gong, and serving to produce sound by the vibration of an armature.
8703	**INDICATOR.** ANNUNCIATOR.	A signalling device operated electro-magnetically, and serving to indicate whether a current is flowing or has flowed in one or more circuits. It is usually employed in connection with electric bells.
8704	**BURGLAR ALARM.**	An automatic device serving to close or open an electric circuit, usually on the opening of a door or window.

SECTION 9.

TELEGRAPHS AND TELEPHONES.

Sub-Section 91. Offices, Exchanges and Stations.
" 92. Systems.
" 93. Circuits.
" 94. Calling Devices and Calling Systems.
" 95. Transmitters, Receivers, Relays and Repeaters
" 96. Switching Devices.
" 97. Lines and Line Equipment.
" 99. Miscellaneous Terms.

SUB-SECTION 91.
OFFICES, EXCHANGES AND STATIONS.

No.	TERM.	DEFINITION.
9101	**PUBLIC CALL OFFICE.** PAY STATION, *U.S.A.*	A subscriber's station available for the use of the public on payment of a fee, which may be deposited in a coin box or paid to an attendant.
9102	**EXCHANGE.** CENTRAL OFFICE, *U.S.A.*	A switching centre for inter-connecting the lines which terminate therein.
9103	**MANUAL EXCHANGE.**	An exchange operating on a manual telephone system.
9104	**AUTOMATIC EXCHANGE.**	An exchange operating on an automatic telephone system.
9105	**SEMI-AUTOMATIC EXCHANGE.**	An exchange operating on a semi-automatic telephone system.
9106	**LOCAL EXCHANGE.** LOCAL CENTRAL OFFICE, *U.S.A.*	An exchange in which subscribers' lines terminate.
9107	**TRUNK EXCHANGE.**	An exchange in which long-distance circuits terminate.
9108	**PRIVATE EXCHANGE.** *P.X.*	An exchange which serves a business or other organisation and is not connected to a public exchange.
9109	**PRIVATE AUTOMATIC EXCHANGE.** *P.A.X.*	A private exchange operating on an automatic system.
9110	**PRIVATE BRANCH EXCHANGE.** *P.B.X.*	An exchange which is usually installed on the premises of a subscriber and which is connected to a public exchange.

No.	TERM.	DEFINITION.
9111	**PRIVATE AUTOMATIC BRANCH EXCHANGE.** *P.A.B.X.*	A private branch exchange operating on an automatic system.
9112	**SATELLITE EXCHANGE.**	An automatic exchange in which the lifting of the receiver by a subscriber takes possession of an outgoing junction to another automatic exchange. The incoming traffic may be received from one or more exchanges.
9113	**MULTI-EXCHANGE SYSTEM.** MULTI-OFFICE EXCHANGE, *U.S.A.*	A group of associated local exchanges.
9114	**EXCHANGE AREA.**	The district served by one exchange.
9115	**SUBSCRIBER'S SET.** SUBSET, *U.S.A.*	An assembly of apparatus designed for originating and receiving telephone calls in conjunction with an exchange.
9116	**EXTENSION SET.**	A subscriber's set connected to a private branch exchange.
9117	**SUBSCRIBER'S STATION.** SUBSTATION, *U.S.A.*	A subscriber's set installed and connected to a public telephone system.
9118	**SUBSCRIBER'S MAIN STATION.**	A subscriber's station which is used for originating calls and on which incoming calls from the public exchange or from an extension station are answered.
9119	**SUBSCRIBER'S EXTENSION STATION.**	A subsidiary station which has access to a public exchange for outgoing calls with or without the intervention of a main station. Incoming calls are received by the intervention of the main station.
9120	**SWITCH ROOM.**	A room which contains the actual switching apparatus of a telephone exchange.
9121	**OPERATING ROOM.**	A switch room in a manual or semi-automatic exchange.
9122	**AUTO-ROOM.**	A switch room in an automatic exchange.
9123	**A-TELEPHONIST.** A-OPERATOR.	A telephonist who attends to calls from subscribers.
9124	**B-TELEPHONIST.** B-OPERATOR.	A telephonist who attends to calls from other telephonists.

No.	TERM.	DEFINITION.
9125	**CALLING PARTY.**	The party who originates a telephone call.
9126	**CALLED PARTY.**	The party required by the calling party.

SUB-SECTION 92. SYSTEMS.

No.	TERM.	DEFINITION.
9201	**SINGLE-NEEDLE SYSTEM.**	A telegraph system in which Morse signals are indicated by the deflection of a vertical needle to left and right.
9202	**SINGLE-CURRENT SYSTEM.**	A telegraph system in which signals are transmitted by currents in one direction.
9203	**DOUBLE-CURRENT SYSTEM.**	A telegraph system in which signals are transmitted by reversing a current that is normally on the line during transmission.
9204	**WHEATSTONE AUTOMATIC SYSTEM.**	A high-speed double-current Morse system in which the signals are transmitted mechanically and recorded automatically.
9205	**SIMPLEX SYSTEM.**	A telegraph system in which the circuit is arranged for operation in one direction at one time. Where the context does not indicate otherwise, the term is understood to relate to Morse code working.
9206	**MULTIPLE-WAY SYSTEM.**	A telegraph system in which two or more messages are sent over the same wire simultaneously either (1) where each way has whole-time connection to the line, or (2) by allocation of the exclusive use of the line wire to each way in rapid succession.
9207	**DIPLEX SYSTEM.**	A telegraph system in which the circuit is arranged for the simultaneous transmission of two messages in the same direction over a single circuit. Where the context does not indicate otherwise, the term is understood to relate to Morse code working. The system is not used in practice.

No.	TERM.	DEFINITION.
9208	**DUPLEX SYSTEM.**	A multiple-way system in which the circuit is arranged for simultaneous operation in opposite directions over a single circuit. Where the context does not indicate otherwise the term is understood to relate to Morse code working.
9209	**BRIDGE DUPLEX SYSTEM.**	A duplex system in which the neutrality of the receiving apparatus to the sent currents is secured by a balance of potentials on the Wheatstone Bridge principle. Received currents pass along the Bridge between the equipotential points.
9210	**DIFFERENTIAL DUPLEX SYSTEM.**	A duplex system in which the sent currents divide through two sections of the receiving apparatus in opposite directions so as to balance their effects, whereas the received currents pass mainly through one section, or through the two sections in the same direction, and operate the apparatus.
9211	**TRIPLEX SYSTEM.**	A multiple-way system in which the circuit is arranged for simultaneous transmission by two message channels in one direction and by one message channel in the opposite direction over a single circuit. Where the context does not indicate otherwise, the term is understood to relate to Morse code working.
9212	**QUADRUPLEX SYSTEM.**	A multiple-way system in which the circuit is arranged for the simultaneous transmission of two messages in each direction over a single circuit. Where the context does not indicate otherwise the term is understood to relate to Morse code working.
9213	**MULTIPLEX SYSTEM.**	A multiple-way system of sending two or more messages over the same wire simultaneously by the allocation of the exclusive use of the line wire in rapid succession.

No.	TERM.	DEFINITION.
9214	**MORSE MULTIPLEX SYSTEM.**	A multiplex system which provides for Morse signalling. It is subdivided according to the number of ways, as follows :— **Multiplex Diode** ... ... 2-way ,, **Triode** ... ... 3-way. ,, **Tetrode** ... 4-way. ,, **Pentode** ... 5-way. ,, **Hexode** ... 6-way.
9215	**PRINTING MULTIPLEX SYSTEM.**	A multiplex system which provides for printing the messages other than by means of Morse code. It is described according to the number of ways prefixed by the name of the particular type of apparatus used, *e.g.*, **Baudot Double** ... ... 2-way. ,, **Triple** ... ... 3-way. ,, **Quadruple** ... 4-way. ,, **Quintuple** ... 5-way. ,, **Sextuple** ... ... 6-way. If the duplex principle is applied, the word is added, *e.g.*, Baudot Sextuple Duplex.
9216	**MANUAL TELEPHONE SYSTEM.**	A telephone system in which the calling party's order is given to a telephonist who completes the call directly by hand, either with or without the assistance of one or more other telephonists.
9217	**AUTOMATIC TELEPHONE SYSTEM.** MACHINE-SWITCHING TELEPHONE SYSTEM.	A telephone system in which the calling party is enabled, without the aid of a telephonist, to complete a call through remotely controlled switches.
9218	**SEMI-AUTOMATIC TELEPHONE SYSTEM.**	A telephone system in which the calling party's order is given to a telephonist who completes the call through remotely controlled switches.
9219	**ELECTROPHONE.**	A telephone system in which public performances can be heard on specially equipped subscribers' line circuits.

SUB-SECTION 93. CIRCUITS.

No.	TERM.	DEFINITION.
9301	**EARTH RETURN CIRCUIT.** GROUND RETURN, *U.S.A.*	A circuit which has a conductor (or two or more in parallel) between two points and which is completed through the earth.
9302	**METALLIC CIRCUIT.**	A circuit in which the fundamental portion is composed of metallic conductors without utilising the earth as a return path.
9303	**TWO-WIRE CIRCUIT.**	A metallic circuit formed by two adjacent conductors insulated from each other. They may be either twisted together or parallel to each other.
9304	**SUPERPOSED CIRCUIT.**	An additional circuit obtained from a circuit or circuits normally used for other services, and in such a manner that the services can be given simultaneously without mutual interference.
9305	**PHANTOM CIRCUIT.**	A superposed circuit, each side of which consists of the two conductors of a two-wire circuit in parallel.
9306	**SIDE CIRCUIT.**	A two-wire circuit forming one side of a phantom circuit.
9307	**IMPULSE CIRCUIT.**	A circuit through which impulses are transmitted.
9308	**LOADED CIRCUIT.**	A circuit in which the normal inductive reactance has been altered for the purpose of increasing its transmission efficiency.
9309	**OPEN CIRCUIT.**	In telegraphy. A circuit in which there is no current flowing unless a signal is being sent.
9310	**CLOSED CIRCUIT.**	In telegraphy. A circuit in which a current flows continuously subject to control by any station for signalling purposes.
9311	**DIRECT CIRCUIT**	A telegraph circuit in which the currents transmitted operate the distant signalling instrument without the intervention of a relay.
9312	**DIVIDED CIRCUIT.**	A telegraph circuit on which one or more message channels are terminated at some point other than a terminal station.

No.	TERM.	DEFINITION.
9313	**TRUNK CIRCUIT.** LONG-DISTANCE LINE, *U.S.A.*	A circuit connecting distant telephone exchange areas.
9314	**JUNCTION CIRCUIT.** TRUNK, *U.S.A.*	A circuit connecting two local exchanges.
9315	**TRUNK RECORD CIRCUIT.**	A telephone circuit connecting a calling party to a telephonist who records particulars of a trunk call.
9316	**ORDER-WIRE CIRCUIT.**	A telephone circuit provided for the use of telephonists for ordering junction connections.
9317	**SPLIT ORDER-WIRE CIRCUIT.**	A circuit consisting of two or more order wires allocated to one B-telephonist.
9318	**TRANSFER CIRCUIT.**	A switching circuit between two telephonists' positions in an exchange.

SUB-SECTION 94.
CALLING DEVICES AND CALLING SYSTEMS.

No.	TERM.	DEFINITION.
9401	**MAGNETO BELL.**	An electric bell operated by alternating current.
9402	**NIGHT BELL.**	An electric bell for use at night or during slack periods.
9403	**TREMBLER BELL.**	An electric bell operated by direct current made intermittent by the operation of the bell.
9404	**CALCULAGRAPH.**	A machine intended to measure and record lapse of time on a telephone system.
9405	**CHRONOPHER.**	A switching instrument which transmits automatically, over selected telegraph circuits, standard time signals from an observatory.
9406	**CALLING DEVICE.**	A device used in automatic telephony for controlling automatic switches for the purpose of establishing a connection.

No.	TERM.	DEFINITION.
9407	**KEY-SET CALL SENDER.**	A calling device by means of which a telephonist, by manipulating keys, controls the switching mechanism.
9408	**DIAL.**	A calling device arranged in the form of a dial.
9409	**DIALLING.**	The act of manipulating a dial.
9410	**CALLING-PARTY RELEASE.**	A method of release whereby all the switches in a connection are released by the calling party replacing his receiver.
9411	**FIRST-PARTY RELEASE.**	A method of release whereby some or all of the switches in a connection are released by the first party to replace his receiver.
9412	**TELEPHONIST RELEASE.**	A method of release whereby the release of some or all of the switches in a connection is controlled by a telephonist. The calling party has control of the connection until the telephonist answers.
9413	**MANUAL RINGING.**	Ringing which is started and stopped by the operation of a key
9414	**POWER RIN(**	
9415	**MACHINE RING**	
		of the called party.
9416	**INTERRUPTED RINGING.**	Power ringing which is periodically and automatically interrupted.
9417	**KEYLESS RINGING.**	Machine ringing which is effected by the insertion of the plug of the switching junction into the jack of the called party's line.
9418	**HARMONIC SELECTIVE SIGNALLING.**	Signalling by means of alternating or pulsating currents of different frequencies: each individual station on a circuit being tuned to one frequency only, a calling station can call any selected station independently of the others by employing the frequency particular to that station.

No.	TERM.	DEFINITION.
9419	**SUPERPOSED RINGING CURRENT.**	A ringing current consisting of a direct current superposed on an interrupted alternating current.
9420	**PILOT SIGNAL.**	An automatically operated supervisory signal which indicates a change from normal in one or more circuits, signals, or other devices forming part of the group with which it is associated, *e.g.*, Pilot Lamp or Pilot Fuse.

SUB-SECTION 95.

TRANSMITTERS, RECEIVERS, RELAYS AND REPEATERS.

No.	TERM.	DEFINITION.
9501	**DISTRIBUTOR.**	A rotating device which distributes line-connection in quick succession to the different message channels of a multiplex telegraph system.
9502	**PHONIC WHEEL.**	A toothed iron wheel driven electro-magnetically from a vibrating reed or fork.
9503	**SOUNDER.**	A telegraph receiving instrument in which Morse signals are read by intervals of time between two diverse sounds.
9504	**TRANSMITTER.**	In telegraphy. A mechanical device for sending electrical signals over a telegraph circuit.
9505	**RECEIVER.**	In telephony. An electro-mechanical device designed to convert electrical waves or vibrations into audible sound waves.
9506	**TRANSMITTER.** MICROPHONE.	In telephony. An electro-mechanical device designed to convert sound waves or vibrations into electrical waves or vibrations for transmission over a telephone or other circuit.
9507	**MICROPHONE.**	A transmitter designed to have its electrical resistance directly and materially altered by slight differences in mechanical pressure such as are caused by sound waves or vibrations. The term is now generally used as a synonym for Telephone Transmitter.

No.	TERM.	DEFINITION.
9508	**MICROTELEPHONE.**	A combination of telephone transmitter and receiver in a form convenient for holding.
9509	**INDUCTION COIL.**	In telephony. A transformer with open magnetic circuit suitable for developing voltages in its secondary coil which vary in polarity and strength with the rise and fall of a uni-directional current in the primary coil.
9510	**RELAY.**	A device by means of which one circuit is indirectly controlled by a change in the same or another circuit.
9511	**NON-POLARISED RELAY.**	A relay the operation of which depends upon the magnitude of the current flowing in the controlling circuit irrespective of the direction of the current.
9512	**POLARISED RELAY.**	A relay the operation of which depends upon the direction as well as upon the magnitude of the current in the controlling circuit.
9513	**NEUTRAL RELAY.**	A polarised relay so arranged that it operates in one direction or another from a normal neutral position according to the direction of the current in the controlling circuit.
9514	**REPEATER.**	A device whereby currents received over one circuit are automatically repeated in another circuit or circuits in amplified form.
9515	**TELEPHONIC REPEATER.**	A repeater for currents of telephonic frequency and magnitude.
9516	**IMPULSE REPEATER.**	A repeater used in automatic telephony for repeating impulses from one line circuit into another.
9517	**REPEATING COIL.**	A special form of transformer used in telephone practice ordinarily of unity ratio.

SUB-SECTION 96. SWITCHING DEVICES.

No.	TERM.	DEFINITION.
9601	**INTERCOMMUNICATION SWITCH.**	A switching device which affords inter-communication facilities to a selected group of telegraph circuits
9602	**JACK.**	In telephony. A device used generally for terminating the permanent wiring of a telephone circuit, and affording means for making connection by a plug connected to a cord.
9603	**BREAK JACK.**	A jack arranged to break the normal circuit when a plug is inserted.
9604	**BRANCHING JACK.**	A jack without break contacts.
9605	**PLUG.**	In telephony. A device for connecting the conductors of a flexible cord to the contacts of a jack.
9606	**SWITCHBOARD.**	In telephony. An assemblage of apparatus fixed and connected for the switching of speaking and signalling circuits.
9607	**MANUAL SWITCHBOARD.**	A switchboard on which the switching operations are performed by hand.
9608	**SWITCHBOARD SECTION.**	A unit one or more of which constitutes a switchboard.
9609	**SECTION.**	In automatic telephony. A group of switches whose bank-to-bank cabling is connected as a single unit to cable terminal strips.
9610	**MULTIPLE.**	(*a*) Subst. A circuit accessible at a number of points to any one of which connection can be made. (*b*) Verb. To render a circuit accessible at a number of points to any one of which connection can be made.
9611	**SECTION MULTIPLE.**	In automatic telephony. The aggregate of the multiples in a section.
9612	**LEVEL MULTIPLE.**	In automatic telephony. The multiples which, taken together, carry the traffic from a given level of a section.
9613	**RANK OF SWITCHES.**	In automatic telephony. The switches which provide for any one stage of call selection.

No.	TERM.	DEFINITION.
9614	**SELECTOR.**	An automatic switching device serving to select a particular contact or contacts by impulse and/or hunting action.
9615	**FINAL SELECTOR.**	A selector which establishes connection with the called line. It is usually operated by the last digit or digits of the called number by impulse action only.
9616	**GROUP SELECTOR.**	A selector which selects a group of links by impulse action and subsequently selects an idle trunk or link in the group by hunting action.
9617	**PRE-SELECTOR.** LINE SWITCH.	An automatic switch which connects one line to any one of a group of links by hunting action.
9618	**CODE SELECTOR.**	A selector provided in an originating exchange for the finding of outgoing junctions to other exchanges or of first group selectors at the originating exchange in accordance with an alphabetical code. In the latter case the first group selector is controlled by the first digit of the called party's number.
9619	**TANDEM SELECTOR.**	A selector provided at an automatic exchange for receiving junction traffic from another exchange and passing it forward.
9620	**SELECTOR REPEATER.**	A selector switch the main function of which is to act as a group selector but which, after the first digit has been received, serves to repeat all succeeding impulses.
9621	**PRIVATE BRANCH EXCHANGE FINAL SELECTOR.** *P.B.X. Final Selector.*	A selector which, in addition to the standard operation of a final selector, finds an idle private branch exchange line by hunting action.
9622	**LINE FINDER.**	An automatic switch which connects one link to any one of a group of lines by finding action.
9623	**MASTER SWITCH.**	A switch which controls a group of line switches by electrical and/or mechanical means.

No.	TERM.	DEFINITION.
9624	**SEQUENCE SWITCH.**	A switch for making a number of electrical contacts in a definite order.
9625	**WIPER.**	That portion of the moving member of a selector or other similar device which engages with the contacts of a bank.
9626	**BANK.**	In automatic telephony. An assemblage of fixed contacts with which the moving member of a selector or other similar device engages. Banks are usually multipled.
9627	**BANK CABLE.**	A cable connecting a switch bank to a terminal rack.
9628	**BANK WIRES.**	Wires which connect adjacent banks to each other in multiple.

SUB-SECTION 97. LINES AND LINE EQUIPMENT.

No.	TERM.	DEFINITION.
9701	**JUMPER WIRE.**	In telephony. A length of wire used in a cross-connection field for the purpose of re-arrangement of permanent circuit connections.
9702	**DIRECT LINE.** INDIVIDUAL LINE, *U.S.A.*	A subscriber's line upon which only one subscriber's station is connected to an exchange. It may have one or more extension sets.
9703	**PARTY LINE.**	A subscriber's line upon which two or more subscribers' stations are connected.
9704	**SUBSCRIBER'S LINE.**	The wire connection between a subscriber's station and an exchange.
9705	**TIE LINE.**	A line between two private branch exchanges.

No.	TERM.	DEFINITION.
9706	**COIL LOADING.**	The addition to a circuit of inductance by coils connected at intervals along the conductors to alter the normal reactance.
9707	**CONTINUOUS LOADING.**	The addition to a circuit of inductance uniformly distributed along the conductors to alter the normal reactance.
9708	**POSITIVE WIRE.**	That wire of a telephone line within an exchange which, when the line is clear, is connected to the positive pole of the battery.
9709	**NEGATIVE WIRE.**	That wire of a telephone line within an exchange which, when the line is clear, is connected to the negative pole of the battery.
9710	**A-SIDE.**	The double-current message channels of a quadruplex telegraph circuit.
9711	**B-SIDE.**	The single-current message channels of a quadruplex telegraph circuit.
9712	**A-WIRE AND B-WIRE.***	In telephony. The two wires of a telephone line.
9713	**S-WIRE.*** C-WIRE, TESTING WIRE, HOLDING WIRE, THIRD WIRE.	The wire of a telephone circuit associated with the sleeve of a plug, or with a corresponding point.
9714	**R-WIRE.*** RING WIRE.	The internal wire of a telephone exchange circuit which is associated with the ring contact of a plug, or with a corresponding point.
9715	**T-WIRE.*** TIP WIRE.	The internal wire of a telephone exchange circuit which is associated with the tip contact of a plug, or with a corresponding point.
9716	**LINK** *or* **TRUNK.**	In automatic telephony. A wire connection between switching devices in the same automatic exchange. In U.S.A. the term "Trunk" has also the significance of the British term "Junction Circuit."

* NOTE.—It seems desirable to adopt as soon as possible the following nomenclature :—
A—The wire external to the exchange and up to the main frame—to become the T wire inside the exchange.
B—The wire external to the exchange and up to the main frame—to become the R wire inside the exchange.
S—The test wire. (Sleeve).

No.	TERM.	DEFINITION.
9717	**BUNCHED CONDUCTORS.**	In telegraphy or telephony. Two or more conductors connected in parallel, either for actual use or for testing purposes, so that electrically they form a single conductor of correspondingly reduced resistance.
9718	**PILOT WIRE.**	In telegraphy or telephony. A wire in a multiple-wire cable reserved for the purpose of detecting any deterioration in the insulation of the cable.

SUB-SECTION 99. MISCELLANEOUS TERMS.

No.	TERM.	DEFINITION.
9901	**HOLDING TIME.**	In telephony. The time during which a switch or circuit is held engaged on a call.
9902	**CLEAR.** FREE, *U.S.A.*	The normal disengaged condition of a circuit or apparatus.
9903	**IMPULSE.**	A change of current of brief duration produced in a circuit.
9904	**MAKE IMPULSE.**	An impulse in which the change consists in starting a current.
9905	**BREAK IMPULSE.**	An impulse in which the change consists in interrupting a current.
9906	**IMPULSE FREQUENCY.**	The number of impulses per second in a train of regularly recurring impulses.
9907	**IMPULSE PERIOD.**	The time between the corresponding points of two successive impulses in a train of regularly recurring impulses.
9908	**IMPULSE RATIO.**	The ratio of duration of an impulse to its impulse period.
9909	**QUICK OPERATING.**	A qualifying term applied to relays and similar devices to indicate that the initial movement towards performing some function is quick as compared with a normal movement.

No.	TERM.	DEFINITION.
9910	**SLOW OPERATING.**	A qualifying term applied to relays and similar devices to indicate that the initial movement towards performing some function is slow as compared with a normal movement.
9911	**QUICK RELEASE.**	A qualifying term applied to relays and similar devices to indicate that the return to the normal condition is quick as compared with a normal movement.
9912	**SLOW RELEASE.**	A qualifying term applied to relays and similar devices to indicate that the return to the normal condition is slow as compared with a normal movement.
9913	**QUICK ACTING.**	A qualifying term applied to relays and similar devices to indicate that both the operation and the release are quick as compared with a normal movement.
9914	**SLOW ACTING.**	A qualifying term applied to relays and similar devices to indicate that both the operation and the release are slow as compared with a normal movement.
9915	**TRANSMISSION EQUIVALENT.**	The number of miles of standard cable which produces attenuation equivalent to that produced by the line or apparatus under comparison.
9916	**CADENCE.**	A signal for the operator of a Baudot or similar telegraph keyboard as to when to depress a signal-group of keys.
9917	**CORRECTION.**	A system by which rotating instruments at the two ends of a synchronous telegraph circuit are kept in phase or unison.
9918	**FIVE-UNIT CODE.**	A code of signals in which all letters or other signals are of equal duration and are each produced by five equal impulses.
9919	**PHASE RELATIONSHIP.**	The degree of, or divergence from, synchronism between the distributor brushes at the two stations of a multiplex telegraph circuit.

No.	TERM.	DEFINITION.
9920	**ANCILLARY.**	A qualifying term applied to a jack, lamp, etc., used for providing subsidiary answering points in order to facilitate team working of telephonists.
9921	**BUSY.**	The condition of a line or of a piece of apparatus when it is in use.
9922	**BUSY TONE.** BUSY BACK.	An intermittent audible signal indicating to the calling party that the required circuit is busy. Busy may also relate to a dependent circuit.
9923	**DIALLING TONE.**	In automatic telephony. An audible signal indicating to the calling party that dialling should proceed.
9924	**N.U. TONE.** *Ab. for Number-Unobtainables Tone.*	In automatic telephony. An audible signal indicating to the calling party that the called party's line is temporarily or permanently out of service.
9925	**RINGING TONE.** AUDIBLE RINGING SIGNAL.	In automatic telephony. An audible signal indicating to the calling party that selection has been completed and that the called party is being rung.
9926	**REVERTING CALL.**	A telephone call between two stations on the same party line.
9927	**CROSS-TALK.**	Overhearing between telephone circuits that are intended to be entirely separate.
9928	**MIXED SERVICE.**	Service on a private branch exchange switchboard where some lines are given private exchange service only.
9929	**SIDE TONE.**	The reproduction in a speaker's telephone receiver of sounds transmitted by his transmitter.
9930	**BUSY HOUR.**	In telegraph offices and in telephone exchanges the traffic generally shows a well-defined busy period. The hour during this busy period which shows the greatest average of traffic is known as the "Busy Hour." This is ordinarily made the basis of staff and plant calculations.
9931	**TELEPHONE TRAFFIC.**	The aggregate of telephone exchange calls considered in bulk.

No.	TERM.	DEFINITION.
9932	**TELEPHONE TRAFFIC UNIT.**	A unit employed in computations for the traffic-carrying capacity of telephone plant. If A be the traffic units C be the number of calls in a specified period (the busy hour unless otherwise stated) and T be the average time, expressed as a fraction of the specified period, taken for a call, then $A = C \times T$. The value of A may be regarded as representing :— (i) The total circuit time occupied in carrying C calls of an average duration T. (ii) The average number of calls originated during an interval of time T within the specified period. (iii) The average number of calls in progress simultaneously during the specified period.
9933	**INTERCONNECTING.**	In automatic telephony. Any method of connecting level multiples together so that links are available from different sections in a different order.
9934	**GRADING.**	In automatic telephony. The method of connecting level multiples together so that a group of switches is given access to individual outgoing links on the early choices, but on later choices shares access to links with other groups.
9935	**FINDING ACTION.**	The automatic operation of a selector or similar device in moving the wipers to their position of contact with a calling line connected to its bank.
9936	**HUNTING ACTION.**	The automatic operation of a selector or similar device in moving the wipers to their position of contact with an idle line in a chosen group of links or lines.

No.	TERM.	DEFINITION.
9937	**IMPULSE ACTION.**	The operation of a selector or other similar device in finding, by means of electrical impulses, a called line or group of links or lines. Impulse action is predetermined by a calling device.
9938	**LEVEL.**	The rows of contacts of a bank along which the wipers move and make contact successively.
9939	**ARTIFICIAL LINE.**	A network of resistances and capacities simulating the characteristics of a telegraph or telephone line.
9940	**ATTENUATION.**	The total reduction in amplitude of an electrical wave at progressively increasing distances from the point of origin.
9941	**PROPAGATION CONSTANT.**	Of a uniform line or section of a line of periodic recurrent structure. The natural logarithm of the ratio of the steady-state currents at various points separated by unit length in a uniform line of infinite length, or at successive corresponding points in a line of recurrent structure of infinite length. The ratio is determined by dividing the value of the current at the point nearer the point of origin by the value of the current at the point more remote.
9942	**ATTENUATION CONSTANT.**	For a specific frequency. The real part of the propagation constant taken at that frequency.
9943	**WAVE-LENGTH CONSTANT.**	The imaginary part of the propagation constant.
9944	**STANDARD CABLE.**	An ideal uniform line in terms of which the attenuation of a line or network may be specified. The standard cable used for telephone measurements is characterised by the following constants :—

	Per loop mile.	*Per loop km.*
Resistance	88 ohms.	54·7 ohms.
Capacity ...	·054 mf.	·03355 mf.
Inductance	·001 henry.	·000621 henry.
Leakance ...	1 micromho	0·621 micromho.

In U.S.A. this term is now obsolete in practice; where used, the inductance and leakance are taken as nil.

No.	TERM.	DEFINITION.
9945	**MAIN DISTRIBUTION FRAME.** *M.D.F.*	A structure for terminating the internal wires and the external wires of an exchange and for effecting changes in the connections between them.
9946	**INTERMEDIATE DISTRIBUTION FRAME.** *I.D.F.*	A structure for terminating the permanent internal wires of an exchange and for effecting changes in the connections between the main distribution frame and the exchange equipment.
9947	**CROSS-CONNECTION FIELD.**	A space provided in a distribution frame through which circuits connected in consecutive order on one side may be distributed in any desired order on the other side by means of jumper wires.
9948	**HEAT COIL.**	A device designed to protect apparatus against damage from external currents which, although dangerous to the electrical circuit, are not sufficient to act upon a lightning protector on the same circuit.
9949	**CONTACT SPRING.**	A spring serving to make contact and intended to carry a current.
9950	**MAIN CONTACT SPRING.**	A contact spring serving to open or close circuit between two or more other contact springs.
9951	**IMPULSE SPRING.**	A spring which is operated to make and/or break a circuit for the purpose of sending impulses.
9952	**MAKE-BEFORE-BREAK CONTACT SPRING.** CONTINUITY-PRESERVING CONTACT.	A spring in which the main contact spring touches the front contact before it breaks away from the back contact.
9953	**BACK-CONTACT SPRING.**	A spring against which the main contact spring rests when in the normal position.
9954	**FRONT-CONTACT SPRING.**	A spring against which the main contact spring rests when in the operated position.

SECTION 10.

RADIO COMMUNICATION.

Sub-Section 101. Ether and Ether Waves.
102. Aerials and Aerial Construction.
103. Transmission.
104. Reception.
105. Valve Construction and Properties.
106. Circuits and their Properties.
107. Amplifiers and Relays.

Note.—Throughout the List the word WIRELESS may be used in substitution for the word RADIO.

SUB-SECTION 101. ETHER AND ETHER WAVES.

No.	TERM.	DEFINITION.
10101	**RADIO COMMUNICATION.**	The art of transmitting signals by means of radiated ether waves, Communication depending on the propagation of such waves guided by tangible conductors between definite receiving stations or on current passing in the earth between electrodes, is not included.
10102	**RADIO TELEGRAPHY.**	Radio communication carried out telegraphically.
10103	**RADIO TELEPHONY.**	Radio communication carried out telephonically.
10104	**ETHER.**	The all-pervading medium postulated by physicists to explain the observed phenomena of electric and magnetic fields.
10105	**HEAVISIDE LAYER.**	A layer of ionised air above the surface of the earth.
10106	**ATTENUATION.**	The total reduction in amplitude of an ether wave at progressively increasing distances from the point of origin.
10107	**GEOMETRICAL ATTENUATION.**	The reduction in amplitude of an ether wave due to the expansion of the wave front as the distance from its source increases.

No.	TERM.	DEFINITION.
10108	**ABSORPTION.**	The reduction in amplitude of an ether wave due to causes other than the geometrical attenuation.
10109	**FADING.**	A marked temporary diminution of strength of received signals due to changes not caused by either the transmitting or the receiving stations.
10110	**NIGHT EFFECT.**	Irregularities in the strength and/or the apparent direction of arrival of radio signals observable more particularly during the hours of darkness.
10111	**WANDERING.**	The alteration of apparent direction of received signals due to changes not caused by either the transmitting or the receiving stations.
10112	**RADIATION.**	The emission of energy in the form of electro-magnetic waves.
10113	**ETHER WAVES.**	Moving systems of electric and magnetic forces. A single wave is one complete cycle of change of state in the medium.
10114	**WAVE TRAIN.**	A group of successive waves related to one another, cyclical or nearly cyclical in form.
10115	**WAVE-LENGTH.**	The distance between corresponding phases of consecutive waves in a wave train measured in the direction of propagation at any instant.
10116	**FUNDAMENTAL WAVE-LENGTH.**	Of a circuit. The wave-length corresponding to the fundamental oscillation of a circuit. (*See* 10602.)
10117	**NATURAL WAVE-LENGTH.**	Of a circuit. The wave-length corresponding to the natural oscillation of a circuit. (*See* 10601.)
10118	**UNLOADED WAVE-LENGTH.**	Of an aerial. The fundamental wave-length of an aerial system when no tuning inductances or condensers are used. This has been frequently referred to as the " natural wave-length " of the aerial, but the use of this term is here deprecated and should be reserved for the meaning given in No. 10117.

No.	TERM.	DEFINITION.
10119	**WAVE VELOCITY.**	The rate of advance of any phase of a wave.
10120	**CONTINUOUS WAVES.** TYPE A WAVES	A sequence of waves produced without interruption or variation. Waves which, after reaching the steady state, are periodic, *i.e.*, the successive oscillations are identical.
10121	**TYPE A1 WAVES.** CONTINUOUS WAVES, UNMODULATED, KEY CONTROLLED. *C.W.*	Continuous waves in which a variation of amplitude and/or of frequency is made by the operation of keying for the purposes of telegraphic transmission.*
10122	**TYPE A2 WAVES.** CONTINUOUS WAVES, MODULATED AT AUDIBLE FREQUENCY, KEY CONTROLLED. INTERRUPTED CONTINUOUS WAVES. *I.C.W.*	Continuous waves in which a variation of amplitude and/or of frequency is made in a periodic manner at an audible frequency and key controlled for the purposes of telegraphic communication.* The term **TONIC TRAIN** is applied to Type A2 Waves, when the modulation is approximately sinusoidal.
10123	**TYPE A3 WAVES.** CONTINUOUS WAVES MODULATED BY SPEECH.	Continuous waves in which a variation of amplitude and/or of frequency is made in accord with the characteristic vibrations of speech.
10124	**DAMPED WAVES.** TYPE B WAVES	Waves forming successive wave trains in each of which the amplitude, after reaching its maximum, progressively decreases.*
10125	**CARRIER WAVE.**	The wave corresponding in frequency to the continuous oscillation used in radio communication which is modulated, by speech in the case of Type A3 Waves, or by some form of low-frequency oscillation in the case of Type A2 Waves.

*NOTE.—Telegraphy carried out by means of Type A1 Waves implies that each unit of the telegraphic code employed is conveyed by one unbroken series of waves. Telegraphy carried out by means of Type A2 Waves or Type B Waves implies that each unit of the telegraphic code is conveyed by a series of clearly separated groups of waves.

No.	TERM.	DEFINITION.
10126	**SPACING WAVE.**	The radiation which takes place during the spaces of the telegraphic code when signals are made with continuous wave Type A1 transmitters by means of a variation of the wave-length or of the amplitude of the wave.
10127	**BEAM.**	Ether waves, the propagation of which is nominally confined within definite angles.

SUB-SECTION 102.

AERIALS AND AERIAL CONSTRUCTION.

No.	TERM.	DEFINITION.
10201	**AERIAL.** ANTENNA.	The system of conductors established at a radio station for the purpose of radiating or absorbing ether waves. This expression does not include the arrangements for making electrical connection to earth or its equivalent, or the tuning arrangements.
10202	**AERIAL SYSTEM.**	The combination of an aerial with its earth arrangements and tuning arrangements.
10203	**FRAME AERIAL.**	An aerial consisting of two or more turns of a conductor, usually wound round a frame.
10204	**LOOP AERIAL.**	An aerial consisting of a conductor forming a single convolution.
10205	**MULTIPLE TUNED AERIAL.**	An aerial having a number of leads to earth connected at intervals, each lead having in series a tuning arrangement.
10206	**GROUND AERIAL.**	An aerial laid on or near the surface of the ground.
10207	**BURIED AERIAL.**	An aerial buried in the ground.
10208	**SUBMERGED AERIAL.**	An aerial submerged in water.
10209	**COUNTERPOISE.** BALANCING CAPACITY.	An insulated group of conductors forming part of an aerial system used instead of, or supplementary to, a direct continuity connection to earth.

No.	TERM.	DEFINITION.
10210	**EARTH SCREEN.**	A screening metallic system interposed between an aerial and the conducting surface of the ground.
10211	**FEEDER.**	The electrical conductor joining the overhead portion of an aerial and the remainder of an aerial system.
10212	**MAST.**	A structure intended for supporting an aerial; it is generally not self-supporting but requires rigging to enable it to withstand the stresses imposed upon it.
10213	**SPREADER.**	A rod or frame used to keep the individual wires of a multiple-wire aerial in their relative positions.
10214	**TOWER.**	A structure intended for supporting an aerial; it is self-supporting and does not ordinarily require rigging to enable it to withstand the stresses imposed upon it.
10215	**AERIAL RESISTANCE.**	The total effective resistance offered by an aerial system at a particular wave-length. The figure expressing this resistance, multiplied by the square of the aerial current, is a measure of the total power dissipated by the aerial, the radiated power being included.
10216	**AERIAL EFFECT.**	A non-directional disturbing effect occurring in a directional receiver due to lack of symmetry in the disposition of stray capacity in the receiving apparatus.
10217	**ASYMMETRICAL EFFECT.**	The non-directional effect resulting in a loop or frame aerial from lack of symmetry in its construction.
10218	**BEAM AERIAL SYSTEM.**	A combination of aerials with their earthing, tuning and reflecting arrangements so disposed as to concentrate the available radiated energy into a beam.
10219	**BEAM PRIMARY AERIAL SYSTEM.**	That portion of a beam aerial system which is supplied with energy, either directly or by coupling, from the source of high-frequency oscillations.

No.	TERM.	DEFINITION.
10220	**BEAM REFLECTOR AERIAL SYSTEM.**	That portion of a beam aerial system which is excited only by radiation from the primary aerial system.
10221	**BEAM AERIAL FEEDER.**	The connection between the source of high-frequency oscillations and the primary aerial system.
10222	**BEAM RECEIVING AERIAL SYSTEM.**	A combination of aerials with their earthing, tuning and reflecting arrangements so disposed as to collect energy received only from waves arriving from directions within a certain definite angle, to the exclusion of those arriving from other directions.
10223	**BEAM PRIMARY RECEIVING AERIAL SYSTEM.**	That portion of a beam receiving aerial system connected directly or by coupling to the detector.
10224	**BEAM REFLECTOR RECEIVING AERIAL SYSTEM.**	That portion of a beam receiving aerial system which is not connected to the detector.
10225	**BEAM RECEIVING AERIAL FEEDER.**	The connection between a beam primary receiving aerial system and the detector.

SUB-SECTION 103. TRANSMISSION.

No.	TERM.	DEFINITION.
10301	**RADIATION HEIGHT.**	Of an aerial system. The height of an ideal aerial system consisting of an elevated capacity connected to a perfectly conducting earth by a feeder having no capacity which, for the same aerial current and the same frequency, would produce the same electric field at any given distance as the aerial system in question.
10302	**AERIAL CURRENT.**	The current (R.M.S. value unless otherwise stated) in an aerial system measured at an antinode of current.
10303	**RADIATION RESISTANCE.**	Of an aerial system. That component of the aerial resistance which, when multiplied by the square of the aerial current, measures the power radiated.

No.	TERM.	DEFINITION.
10304	**RADIATION CONSTANT.**	Of a transmitter. The product of the radiation height of an aerial system and the aerial current. It is usually expressed in metre-amperes.
10305	**RADIATION FACTOR.**	The radiation constant divided by the wave-length. The power radiated is proportional to the square of this factor.
10306	**TRANSMIT, TO.**	To produce electric impulses in a manner capable of conveying signals from one station to another.
10307	**DOUBLE TRANSMISSION.**	Simultaneous transmission on two separate wave-lengths from the same aerial.
10308	**SIMPLEX WORKING.**	Alternate transmission and reception at a station using only one aerial.
10309	**TRANSMITTER.**	An instrument, or group of instruments, by which transmission can be effected.
10310	**PLAIN AERIAL TRANSMITTER.**	A form of transmitter in which the spark gap is placed directly in series with the aerial.
10311	**DIRECTIONAL TRANSMITTER.**	A transmitter so arranged that the resulting transmission is nearly zero in two directions substantially opposite to one another, and reaches its maximum value in two directions substantially midway between the directions of zero transmission.
10312	**UNIDIRECTIONAL TRANSMITTER.**	A transmitter so arranged that the resulting transmission is nearly zero in one direction, and reaches its maximum value in substantially the opposite direction.
10313	**ARC.** *Ab'n. for Arc Transmitter.*	A device which generates oscillations by means of the electric arc.
10314	**SPARK SYSTEM.**	A system of radio-communication in which the waves emitted are caused by the recurring discharges of a condenser across a spark gap.

No.	TERM.	DEFINITION
10315	**SPARK GAP.**	A piece of apparatus designed for repeated disruptive discharges between its electrodes.
10316	**QUENCHED SPARK GAP.**	A spark gap in which the electrodes are so arranged as to quench the spark (*see* No. 10325).
10317	**ROTARY SPARK GAP.** DISC DISCHARGER.	A spark gap consisting of a toothed or studded cylinder or disc revolving at a high speed between two fixed electrodes.
10318	**SYNCHRONOUS SPARK GAP.**	A rotary spark gap arranged to give a fixed number of sparks in each cycle of an alternating-current supply, the sparks occurring at points of the same phase in successive cycles.
10319	**ASYNCHRONOUS SPARK GAP.**	A rotary spark gap arranged to give a number of sparks in each cycle of an alternating-current supply, the sparks not necessarily occurring at points of the same phase in successive cycles.
10320	**MUSICAL SPARK.**	A spark discharge of which the rate and regularity of sparking are such as to produce a musical note in the telephones of a receiving station.
10321	**TIMED SPARK TRANSMITTER.**	A transmitter so devised that sparks take place with great rapidity, and are separated from one another by a time interval which is an exact multiple of the period of the radiating aerial system, thus producing an oscillation therein which persists without complete disappearance, although there may be some variation of amplitude of the oscillation between consecutive sparks.
10322	**SHOCK EXCITATION.**	The excitation of natural oscillations in an oscillatory system due to a sudden acquisition of energy from an external source.
10323	**DIRECT DRIVE.**	An arrangement whereby the frequency of the oscillations in the aerial is determined by the characteristics of the main oscillating circuit.

No.	TERM.	DEFINITION.
0324	**INDEPENDENT DRIVE.**	An arrangement whereby the frequency of the oscillation in the aerial is determined in an independent circuit.
0325	**QUENCH, TO.**	To extinguish completely the spark in a spark gap at the instant when the energy in the primary circuit first becomes zero.
0326	**RADIO STATION.**	An installation capable of transmitting and/or receiving. The transmitting and receiving instruments may be separated by a considerable distance.
0327	**SPEED OF TRANSMISSION.**	The rate of signalling employed. It is expressed in words per minute, a word being considered to be the equivalent of 5 Morse letters of average length.
0328	**RADIO BEACON.**	A radio transmitter intended to aid navigation by emitting characteristic signals.
0329	**EMERGENCY APPARATUS.**	Special radio apparatus installed on board ship for use should the main electric supply become inoperative. The word "Emergency" is used as an adjective, to distinguish various pieces of apparatus, *e.g.*, Emergency battery.
0330	**MODULATOR.**	An arrangement for causing the amplitude of the oscillations of a carrier wave to vary in accordance with the desired characteristics.
0331	**ABSORBER.**	For Transmitting Circuits. An arrangement whereby the energy available for producing aerial current can be diverted into a non-radiating circuit.
0332	**BLASTING.**	A form of distortion introduced by overloading the modulating system of a telephone transmitter.
0333	**MAGNETOPHONE.**	An instrument for the modulation of an electric current in accordance with impinging sound waves, the action being due to the movement of a coil of wire suspended in a magnetic field.
0334	**ANODE TAPPING POINT.**	The point on the inductance in the main oscillating circuit of a valve generator which is connected to the anode of the valve.

SUB-SECTION 104. RECEPTION.

No.	TERM.	DEFINITION.
10401	**ATMOSPHERICS.** ATMOSPHERIC DISTURBANCES.	Stray ether waves due to natural causes. The term is also applied to the false signals produced thereby.
10402	**INTERFERENCE.**	Confusion of reception due to atmospherics, jamming, or other causes.
10403	**JAMMING.**	Interference due to signals other than those desired.
10404	**BEAT.**	The rise and fall of resultant amplitude due to the combination of oscillations of two different frequencies.
10405	**BEAT RECEPTION.**	Reception by means of the combination of a locally-generated alternating current with the alternating current resulting from incoming signals, the two being of different frequencies.
10406	**DEAD SPACE.**	A term applied in connection with the special case of beat reception in which no beats are audible owing to the two frequencies being identical or very near together.
10407	**DOUBLE RECEPTION.**	Simultaneous reception on two separate wave-lengths on the same aerial.
10408	**RECEIVER.**	A term covering the whole system of receiving apparatus. (This term is not a synonym for Detector. *See* 10417.)
10409	**DIRECTIONAL RECEIVER.**	A receiver so arranged that the resulting sensitivity is nearly zero in two directions substantially opposite to one another, and is maximum in two directions substantially mid-way between the directions of zero sensitivity.
10410	**UNIDIRECTIONAL RECEIVER.**	A receiver so arranged that the resulting sensitivity is nearly zero in one direction and is maximum in substantially the opposite direction.
10411	**DIRECTION FINDER.**	A receiver designed to determine the direction of arrival of ether waves.
10412	**HETERODYNE.** LOCAL OSCILLATOR.	A device which generates the local oscillations necessary for beat reception.

No.	TERM.	DEFINITION.
10413	**AUTO-HETERODYNE.**	A receiving device which generates the local oscillations required for beat reception in addition to performing its other functions, such as amplification or detection.
10414	**TICKER.** TIKKER.	A rapid make and break device used as a receiver of continuous waves.
10415	**TONE WHEEL.**	A commutator or interrupter, forming part of a receiving circuit, so arranged as to perform either of the following operations :— (*a*) To produce rectification by running synchronously with the received oscillation. (*b*) To convert the high-frequency current into an alternating current of low frequency by running asynchronously with the received oscillation.
10416	**COHERER.**	An oscillation detector working on a non-self-restoring contact principle.
10417	**DETECTOR.**	An appliance for converting high-frequency oscillating current (or voltage) into a form capable of affecting an instrument such as a telephone receiver or galvanometer.
10418	**MAGNETIC DETECTOR.**	A form of detector in which the oscillations cause a sudden change in the position of the flux due to a permanent magnet and a revolving iron band, thereby inducing a voltage in a coil in series with a telephone receiver.
10419	**LIMITING DEVICE.**	Any device for limiting the maximum response of a receiver, whatever the strength of the incoming impulse.
10420	**SUPERSONIC RECEPTION**	A method of reception in which the received oscillation is combined with a locally-generated oscillation so as to produce beats of a frequency above audibility. The current of this supersonic frequency is then dealt with by the ordinary process of reception.
10421	**ABSORBER.**	For Receiving Circuits. An arrangement whereby energy received on an unwanted wave-length can be withdrawn from the receiving circuits otherwise than through the detector.

No.	TERM.	DEFINITION.
10422	**WAVE-TRAP.**	Any form of receiving absorber primarily intended for the elimination of interference of one specific frequency.
10423	**FILTER.**	A combination of circuits arranged so that the resultant impedance at certain specific frequencies is very much less than the impedance at other frequencies.
10424	**BAND FILTER.**	A filter so arranged that its impedance is approximately constant over a specific band of frequencies.
10425	**REJECTOR.**	A combination of inductance and capacity joined in parallel, applied to a receiving circuit in such a way that it imposes the maximum possible impedance to currents of a specific frequency in the path in which the rejector is placed, its impedance to other frequencies being comparatively small.
10426	**ACCEPTOR.**	A combination of inductance and capacity joined in series, applied to a receiving circuit in such a way that it imposes the minimum possible impedance to currents of a specific frequency in the path in which the acceptor is placed, its impedance to other frequencies being comparatively great.

SUB-SECTION 105.
VALVE CONSTRUCTION AND PROPERTIES.*

No.	TERM.	DEFINITION.
10501	**IONIC VALVE.**	A vessel in which a suitable vacuum is maintained and which has two or more electrodes, one at least of which provides a source of free electrons. In the above, the expression "electrode" means a conductor which performs some definite function in connection with the operation of the valve and which has an independent external electrical connection.

* When expressing the properties of a valve itself the conditions as to the anode, grid and filament voltages at which these properties are measured should be stated.

No.	TERM.	DEFINITION.
10502	**THERMIONIC VALVE.** *Valve.*	An ionic valve in which the source of free electrons is an electrode maintained at a suitable temperature by external means. A valve having two electrodes is sometimes known as a **DIODE.** A valve having three electrodes is sometimes known as a **TRIODE.** A valve having four electrodes is sometimes known as a **TETRODE,** and so on.
10503	**HARD VALVE.**	A thermionic valve in which the effects of free gas are negligible.
10504	**SOFT VALVE.**	A thermionic valve the properties of which definitely depend upon the presence of free gas.
10505	**CONTROL ELECTRODE.**	An electrode so arranged that its potential controls the ionic current between other electrodes.
10506	**FILAMENT.**	The hot cathode of a thermionic valve forming the source from which the electrons which make up the emission current are set free.
10507	**GRID.**	The control electrode of a thermionic valve.
10508	**ANODE.**	The principal electrode for the collection of the electrons forming the emission current of a thermionic valve.
10509	**GRID CURRENT.**	The internal current flowing between the grid and the remaining electrodes of a thermionic valve. The normal positive grid current is a current flowing into the valve at the grid. If the current flows in the opposite direction it is called the **REVERSE GRID CURRENT.**
10510	**GRID VOLTAGE.**	The voltage between the grid and the negative terminal of the filament in a thermionic valve. NOTE.—When the filament is heated by an alternating current, the voltage is measured between the grid and the centre point of the filament.

No.	TERM.	DEFINITION.
10511	**ANODE CURRENT.**	The current flowing between the anode and the remaining electrodes of a thermionic valve.
10512	**FEED CURRENT.**	The direct-current component of the anode current.
10513	**IONIC CURRENT.**	The current carried through a gas or a vacuum by electrons or ions.
10514	**THERMIONIC CURRENT.**	The ionic current flowing between the electrodes of a thermionic valve.
10515	**SATURATION CURRENT.**	Of a thermionic valve. The more or less clearly-defined maximum value which can be reached by the feed current of a valve for a given condition of filament temperature under non-oscillating conditions.
10516	**TOTAL EMISSION.**	Of the filament of a thermionic valve. The maximum value of the thermionic current which can be obtained from the filament of a thermionic valve, the filament being heated under normal conditions, all the electrodes other than the filament being connected together and sufficient voltage being applied to them to raise the emission current to the state of saturation.
10517	**DULL-EMITTER VALVE.**	A thermionic valve, the filament of which emits sufficient electrons at a temperature below that at which it emits a bright light.
10518	**BRIGHT-EMITTER VALVE.**	A thermionic valve, the filament of which emits sufficient electrons only at a temperature at which it emits a bright light.
10519	**FILAMENT EFFICIENCY.**	Of a thermionic valve. The ratio of the total emission of the filament expressed in milliamperes to the power supplied to the filament in watts.
10520	**SPACE CHARGE.**	The charge of electricity in the space between the electrodes of an ionic valve, due to the presence of free electrons or ions.

No.	TERM.	DEFINITION.
10521	**ANODE VOLTAGE.**	The voltage between the anode and the negative terminal of the filament of a thermionic valve. NOTE.—When the filament is heated by an alternating current, the voltage is measured between the anode and the centre point of the filament.
10522	**BLUE GLOW.**	A blue light sometimes visible within the bulb of an ionic valve, resulting from gas ionisation.
10523	**CHARACTERISTIC CURVES.** *Ab'n for Static Characteristic Curves.*	Of a 3-electrode thermionic valve. The four curves taken under non-oscillating conditions, the co-ordinates of which give simultaneous values of :— (1) The anode current and grid voltage; the anode voltage and the electron emission remaining constant. (2) The anode current and anode voltage ; the grid voltage and electron emission remaining constant. (3) The grid current and grid voltage ; the anode voltage and electron emission remaining constant. (4) The grid current and anode voltage; the grid voltage and electron emission remaining constant.
10524	**CHARACTERISTIC SURFACE.**	Of a valve. A surface defined by co-ordinates representing simultaneous values of the anode voltage, the grid voltage, and either the anode current or the grid current. The two surfaces are known respectively as the **ANODE CURRENT SURFACE** and **GRID CURRENT SURFACE.**
10525	**ANODE RESISTANCE.**	Of a thermionic valve. The ratio of the anode voltage to the corresponding anode current as determined from the static characteristic curve showing the relation between the anode current and anode voltage, the grid voltage and electron emission remaining constant.

No.	TERM.	DEFINITION.
10526	**ANODE A.C. RESISTANCE** ANODE IMPEDANCE, *deprecated.*	Of a thermionic valve. The ratio of a small change of anode voltage to the corresponding change of anode current as determined from the static characteristic curve showing the relation between the anode current and anode voltage, the grid voltage and electron emission remaining constant. Symbol R_a.
10527	**GRID RESISTANCE.**	Of a thermionic valve. The ratio of the grid voltage to the corresponding grid current as determined from the static characteristic curve showing the relation between the grid current and grid voltage, the anode voltage and electron emission remaining constant.
10528	**ANODE CONDUCTANCE.**	Of a thermionic valve. The reciprocal of anode resistance.
10529	**ANODE A.C. CONDUCTANCE.**	Of a thermionic valve. The reciprocal of anode A.C. resistance.
10530	**GRID CONDUCTANCE.**	Of a thermionic valve. The reciprocal of grid resistance.
10531	**MUTUAL A.C. CONDUCTANCE.**	Of a thermionic valve. The ratio of a small change of anode current to the corresponding change of grid voltage, as determined from the static characteristic curve showing the relation between the anode current and grid voltage, the anode voltage and electron emission remaining constant.
10532	**AMPLIFICATION FACTOR.**	Of a thermionic valve. The numerical ratio of the slope of the anode current/grid voltage characteristic curve to the slope of the anode current/anode voltage characteristic curve, the slope in each case being that at the point representing the particular adjustment under consideration. Symbol *m*. *See* No. 10704.

No.	TERM.	DEFINITION.
10533	**GRID BATTERY.**	A battery used to produce any desired initial grid voltage.
10534	**GRID LEAK.**	A resistance connected to the grid circuit of an ionic valve for the purpose of controlling the grid voltage.
10535	**GRID BIAS.**	Of a thermionic valve. A deliberately applied initial grid voltage.

SUB-SECTION 106. CIRCUITS AND THEIR PROPERTIES.

No.	TERM.	DEFINITION.
10601	**NATURAL OSCILLATION.**	An oscillation in a system having capacity and inductance of which the frequency is solely dependent on the constants of the system.
10602	**FUNDAMENTAL OSCILLATION.**	The natural oscillation of the lowest frequency.
10603	**FORCED OSCILLATION.**	An oscillation in a system which is maintained by an external supply of energy and which has the frequency of the external supply, generally different from the fundamental frequency of the system in question.
10604	**DAMPED OSCILLATION.**	An oscillation the amplitude of which progressively decreases.
10605	**UNDAMPED OSCILLATION.**	An oscillation, whether forced or natural, the amplitude of which is constant.
10606	**NATURAL FREQUENCY.**	The frequency of a natural oscillation.
10607	**FUNDAMENTAL FREQUENCY.**	The frequency of a fundamental oscillation.
10608	**NOTE.**	The note produced by any regularly interrupted form of transmission, such as Type A2 (interrupted continuous waves) or Type B (spark telegraphy). The numeric employed denotes the number of audible impulses per second.

No.	TERM.	DEFINITION.
10609	**NOTE TUNING.** TONE TUNING.	Tuning the parts of a set of receiving instruments to the note frequency of the transmitter, or to the beat frequency when the beat method of reception is in use.
10610	**NODE.**	In a system which has a non-uniform distribution of R.M.S. current or voltage, any point at which the R.M.S. value is zero is called a node of current or of voltage respectively.
10611	**ANTINODE.**	In a system which has a non-uniform distribution of R.M.S. current or voltage, any point at which the R.M.S. value is at its maximum is called an antinode of current or of voltage respectively.
10612	**COUPLING.**	The association between two oscillatory systems whereby a transference of energy from one system to the other is made possible.
10613	**COUPLING FACTOR.** COUPLING COEFFICIENT.	The factor depending upon the constants of any two of a group of coupled circuits which determines, for any given resistance and tuning of the circuits, the rate of transfer of energy between these two circuits. With different forms of coupling the factors are differently expressed. In each case the factor has the same physical significance and appears in equations expressing the electrical conditions in the circuit in the same way.
10614	**CAPACITY COUPLING.**	The coupling between two oscillatory systems due to capacity between points of the circuits normally at different potentials.
10615	**AUTO-CAPACITY COUPLING.**	The coupling between two oscillatory systems due to a condenser common to both.
10616	**INDUCTIVE COUPLING.**	The coupling between two oscillatory systems due to the magnetic reaction between separate inductances in those systems.

No	TERM	DEFINITION.
10617	**AUTO-INDUCTIVE COUPLING.**	The coupling between two oscillatory systems due to an inductance common to both.
10618	**RESISTANCE COUPLING.**	The coupling between two oscillatory systems due to a resistance common to both.
10619	**DAMPING.**	Of a circuit. That property of a circuit which tends to cause a dying down of unsupported oscillations.
10620	**LOGARITHMIC DECREMENT.**	Of an oscillation. When the amplitude of an oscillation decreases in geometrical progression, the Naperian logarithm of the ratio of the maximum displacement of any oscillation to the maximum displacement in the same direction of the immediately succeeding oscillation is known as the logarithmic decrement.
10621	**EQUIVALENT LOGARITHMIC DECREMENT.**	Of an oscillation. In cases of oscillation in which the amplitude does not decrease in geometrical progression, the apparent value of the logarithmic decrement, as obtained by the usual methods of measurement, is known as the equivalent logarithmic decrement.
10622	**DECAY COEFFICIENT.**	Of an oscillation. The logarithmic decrement divided by the period.
10623	**LOGARITHMIC INCREMENT.**	Of an oscillation. When the amplitude of an oscillation increases in geometrical progression, the Naperian logarithm of the ratio of the maximum displacement of any oscillation to the maximum displacement in the same direction of the immediately preceding oscillation is known as the logarithmic increment.
10624	**EQUIVALENT LOGARITHMIC INCREMENT.**	Of an oscillation. In cases of oscillation in which the amplitude does not increase in geometrical progression, the apparent value of the logarithmic increment, as obtained by the usual methods of measurement, is known as the equivalent logarithmic increment.
10625	**HARMONIC.**	An oscillation having a frequency which is an integral multiple of the fundamental frequency. A harmonic having double the fundamental frequency is called the Second Harmonic, and so on.

No.	TERM.	DEFINITION.
10626	**SELECTIVITY.**	The property of a receiving system whereby it is possible to discriminate between a number of simultaneous signals.
10627	**SYNTONISE, TO.**	To adjust two or more circuits to the same frequency.
10628	**TUNING.**	Adjusting radio instruments for the purpose of transmission or reception on any particular wave-length.
10629	**DETUNING.**	The deliberate tuning of a radio circuit to a frequency slightly different from that of the wave to be received or transmitted.
10630	**SHARP TUNING.**	Tuning is said to be sharp when accurate adjustment is necessary to secure the required result.
10631	**FLAT TUNING.**	Tuning is said to be flat when the required result can be secured over a wide range of adjustment.
10632	**DISPLACEMENT CURRENT.**	A variation of electric stress in a dielectric. It is equivalent in its magnetic effect to an electric current.
10633	**DEAD-END EFFECT.**	The result in an oscillatory circuit of the presence of idle turns of an inductance.
10634	**STRAY-CAPACITY EFFECT.**	The effect due to unintended capacity existing between those parts of a set of apparatus which are normally at different potentials, or between them and earth.
10635	**REACTION.**	Of a valve circuit. The effect of coupling between parts of an ionic valve, or system of valves, and associated circuits which tends to produce a state of electrical oscillation in any part of the circuits.
10636	**NEGATIVE REACTION.**	Of a valve circuit. The effect of coupling between parts of an ionic valve, or system of valves, and associated circuits which tends to prevent a state of electrical oscillation in any part of the circuits.
10637	**REACTION COIL.**	An inductance forming part of the associated circuits of an ionic valve system and primarily intended to cause reaction or negative reaction.

No.	TERM.	DEFINITION.
10638	**REACTION CONDENSER.**	A condenser between any two parts of the external circuits of an ionic valve system primarily intended to cause reaction or negative reaction.
10639	**VARIOMETER.**	A form of variable inductance in which the variation is made without alteration to the amount of conductor in the circuit.
10640	**BUZZER.**	A low-power generator of damped oscillations used for tuning radio circuits.
10641	**WAVEMETER.**	An instrument for measuring radio frequencies. It is usually calibrated in wave-lengths.
10642	**DECREMETER.**	An apparatus for measuring the equivalent logarithmic decrement.

SUB-SECTION 107. AMPLIFIERS AND RELAYS.

No.	TERM.	DEFINITION.
10701	**AMPLIFIER.**	A device by means of which the input-power is used to control a local source of energy in such a way that, provided the limits of saturation are not reached, there is an approximately proportional relation between the magnitudes of the controlling and the controlled powers, without sensible change in wave form.
10702	**MAGNETIC AMPLIFIER.**	An amplifier the operation of which depends upon the magnetic properties of ferro-magnetic materials.
10703	**AMPLIFICATION.**	The process by which, or the extent to which, an amplifier increases power, voltage or current without sensible change in wave form.
10704	**AMPLIFICATION FACTOR.**	Of an amplifier. The ratio of the change of output power, voltage, or current to the change of input power, voltage, or current at the input terminals under certain specified conditions, such as given output or given input. The amplitude in each case must be such that no saturation or threshold effects of any kind are involved

No.	TERM.	DEFINITION.
10705	**NEUTRODYNE.**	A high-frequency amplifier rendered stable over the desired range of wave-lengths by the application of negative reaction.
10706	**NOTE MAGNIFIER.**	An amplifier used for amplifying currents or voltages of audible frequency.
10707	**RELAY.**	A device by means of which the input power is used to control a local source of energy and in which there is no proportional relation between the magnitudes of the controlling and of the controlled powers.
10708	**THERMIONIC RELAY.**	A valve and associated circuits the operation of which is such that they perform the functions of a relay.
10709	**TRIGGER RELAY.**	A relay which, when operated, undergoes changes in regard to its electrical equilibrium such that it remains in its new condition until reset.

SECTION 11.

MISCELLANEOUS APPLICATIONS.

Sub-Section 111. X-Rays.
112. Electro-Medical Terms.
113. Electric Lifts.
119. Various.

SUB-SECTION 111. X-RAYS.

No.	TERM.	DEFINITION.
11101	**X-RAYS.** RÖNTGEN RAYS, ROENTGEN RAYS.	Electro-magnetic waves of very short wave-length which are set up when the velocities of electrons are altered.
11102	**CHARACTERISTIC X-RAYS.**	X-rays which are wholly characteristic of, *i.e.*, peculiar to, a given element.
11103	**CATHODE RAYS.**	A stream of negatively-charged electrons, emitted with high velocity from the cathode or its neighbourhood, when an electric discharge is passed through an evacuated tube.
11104	**POSITIVE RAYS.**	A stream of positively-charged atoms which travel, mainly away from the anode, when an electric discharge is passed through an evacuated tube.
11105	**RADIOLOGY.**	The science and practice of X-rays, radium rays or other such high-frequency rays.
11106	**RADIOGRAPH.** RADIOGRAM, SKIAGRAPH, SKIAGRAM, *U.S.A.*, ROENTGENOGRAM.	An image produced on a photographic plate, film or paper by the action of X-rays.
11107	**RADIOGRAPHY.**	The science of producing radiographs.
11108	**X-RAY SPECTRUM.**	The spectrum produced by splitting up a heterogeneous beam of X-rays by reflection at a crystal face.
11109	**QUANTUM LIMIT.**	The short wave-length boundary to a spectrum of general X-rays. Its position is definitely related, by Planck's quantum relation, to the maximum voltage between the electrodes of the X-ray tube.

No.	TERM.	DEFINITION.
11110	**DISCHARGE TUBE.** VACUUM TUBE,	A tube of insulating material which is provided with electrodes and which, when exhausted to a low gas pressure, permits the passage of a high-voltage discharge.
11111	**GEISSLER TUBE.**	A special form of discharge tube for giving coloured effects.
11112	**X-RAY TUBE.**	A discharge tube suitable for the production of X-rays.
11113	**GAS TUBE.**	An X-ray tube which depends for its action on the presence of residual gas in the tube, and in which the anti-cathode is usually connected electrically to the anode.
11114	**CROOKES' TUBE.**	An early form of gas tube devised by Sir William Crookes and used by him for the study of cathode rays.
11115	**HOT-CATHODE TUBE.**	An X-ray tube in which electrons are liberated by a cathode, electrically heated to incandescence, the anti-cathode serving also as the anode.
11116	**COOLIDGE TUBE.**	A hot-cathode tube in which the vacuum is so high that the residual gas plays no active part.
11117	**ANTI-CATHODE.** TARGET.	Of an X-ray tube. The metal block on which the cathode rays are focussed and from which the X-rays are emitted.
11118	**NEGATIVE GLOW.**	The luminous glow which envelops the cathode in a discharge tube at moderately low gas pressures.
11119	**CATHODE DARK SPACE.** CROOKES' DARK SPACE.	The non-luminous region which envelops and follows the outline of the cathode in a discharge tube at moderately low pressures.
11120	**HARDNESS.** QUALITY.	Of X-rays. A term applied to indicate the penetrating power or wave-length of X-rays. The shorter the wave-length the harder the rays and the greater their penetrating power.
11121	**HARDNESS.**	Of a gas tube. The degree of exhaustion of the residual gas. The higher the vacuum the harder the tube.
11122	**INTENSITY.**	Of X-rays. The X-ray energy received per unit area by a surface normal to the rays.

No.	TERM.	DEFINITION.
11123	**SCATTERED X-RAYS.**	X-rays which, when passed through a material, are deviated in direction but have the same hardness as the original beam.
11124	**FLUORESCENT SCREEN.**	A screen coated with a finely-divided substance which fluoresces under the influence of X-rays.
11125	**INTENSIFYING SCREEN.**	A thin screen, coated with a finely-divided substance which fluoresces under the influence of X-rays, and mounted in close contact with the emulsion of a photographic plate or film for the purpose of reinforcing the image.
11126	**ELECTROSTATIC GENERATOR.** INFLUENCE MACHINE, STATIC MACHINE, WIMSHURST MACHINE	A generator which depends upon electrostatic action.
11127	**INDUCTION COIL.** *Coil,* SPARK COIL, RUHMKORFF COIL.	A transformer suitable for developing a high voltage when its primary winding is excited by an interrupted or variable unidirectional current. It usually has an open magnetic circuit.
11128	**INTERRUPTER.** BREAK.	Of an induction coil. A device for mechanically interrupting the primary current.
11129	**PENETROMETER.** QUALIMETER.	An instrument for measuring the hardness of X-rays.
11130	**OSCILLOSCOPE.**	An auxiliary discharge tube in which the length of the negative glow affords an indication of the amount of current passing.
11131	**IONISATION CHAMBER.**	A piece of apparatus for measuring the degree of ionisation in a gas. It is commonly used as a means of determining the intensity of X-rays.
11132	**ABSORPTION COEFFICIENT.**	Of a material, for X-rays of a given hardness. The ratio of the distance rate of change of intensity at any point to the intensity at that point.
11133	**RADIO-METALLOGRAPHY.**	The radiography of metals.
11134	**X-RAY CRYSTALLOGRAPHY.**	The study of the arrangement of the atoms in a crystal by the reflection of X-rays from the several faces of the crystal.

No.	TERM.	DEFINITION.
11135	**DOSE-METER.**	A device for determining the required exposure when using X-rays for medical treatment.

SUB-SECTION 112. ELECTRO-MEDICAL TERMS.

No.	TERM.	DEFINITION.
11201	**RADIOTHERAPY.**	The treatment of diseases by radiation.
11202	**DIATHERMY.**	The therapeutic use of very high-frequency sustained and undamped oscillations at a comparatively low voltage and relatively high current. The term owes its derivation to the marked heating effect which is produced throughout the tissues by such oscillations.
11203	**HIGH-FREQUENCY TREATMENT.** D'ARSONVALISM.	The therapeutic use of very high-frequency intermittent and isolated trains of heavily damped oscillations of very high voltage and relatively low current.
11204	**FARADISM.**	The therapeutic use of an interrupted current for the stimulation of muscles and nerves. Such a current is derived from an induction coil, usually from the secondary though occasionally from the primary.
11205	**GALVANISM.**	The therapeutic use of direct current.
11206	**MEDICAL IONISATION.** IONIC MEDICATION.	The therapeutic use of an electric current for the purpose of introducing ions of soluble salts into the tissues.
11207	**STATIC BREEZE.** STATIC BRUSH.	The brush discharge as used in therapy.
11208	**STATIC INDUCED CURRENT.**	The charging and discharging current of a pair of Leyden jars or other condensers, which current is passed through a patient.
11209	**STATIC WAVE CURRENT.**	The current resulting from the sudden periodic discharging of a patient who has been raised to a high potential by means of an electrostatic generator.

SUB-SECTION 113. ELECTRIC LIFTS.

No.	TERM.	DEFINITION.
11301	**LIFT.**	An appliance designed to transport persons or material between two or more levels in a vertical or nearly vertical direction by means of a suitably guided car or platform.
11302	**PASSENGER LIFT.**	A lift designed primarily for the transport of passengers.
11303	**GOODS LIFT.**	A lift designed primarily for the transport of material.
11304	**SERVICE LIFT.**	A goods lift so constructed, as regards size or otherwise, as to render it impossible for use to transport a person.
11305	**DUMB WAITER.**	A service lift designed primarily for service between kitchen and living rooms.
11306	**PUSHBUTTON CONTROL.**	A method of control by means of pushbuttons.
11307	**AUTOMATIC CONTROL.**	A method of control in which the car is set in motion and directed to any required level by a single operation, and requires no further operation to cause it to stop where intended.
11308	**SEMI-AUTOMATIC CONTROL.**	A method of pushbutton control not being automatic and involving the use of three pushbuttons for " up," " down " and " stop," respectively.
11309	**CAR SWITCH CONTROL.**	A method of control by means of a switch in the car and involving the attention of the operator during starting, running and stopping.
11310	**DUAL CONTROL.**	A method of alternative automatic and car switch control applied to the same lift, and so arranged that either the one or the other may be employed, but not both at the same time.
11311	**WINDING ENGINE.**	That part of a lift comprising the prime mover or driving pulleys, reduction gear, brake or brakes, and winding drum or traction sheave, the whole being usually mounted on a common bedplate.

No.	TERM.	DEFINITION.
11312	**SAFETY GEAR.**	The mechanical gear attached to the car, platform or counterweight, and designed to wedge the same to the guides in case of failure of the suspension ropes, chain or other support.
11313	**FLOOR SWITCH.**	A switch used in conjunction with the control of an electric lift and situated in the shaft at a height to correspond with a particular floor, and operated by means of a projection attached to the car.
11314	**FLOOR CONTACT.**	A switch fitted in an electric passenger lift car, in conjunction with a false floor, for the purpose of altering or diverting the control circuit when a passenger steps on to the floor.
11315	**DIRECTION SWITCH.**	That part of the control gear of an electric lift which determines the direction of rotation of the motor.
11316	**SELECTING SWITCH.**	A mechanism which forms part of the control gear in certain automatic electric lifts, and which determines the particular floor at which the car shall stop.
11317	**TRACTION DRIVE.** FRICTION DRIVE, V-WHEEL DRIVE, WEDGE DRIVE, HALF-WRAP DRIVE.	A method of transmitting power to the rope or ropes by means of a grooved driving sheave.
11318	**DRUM DRIVE.**	A method of transmitting power to the rope or ropes by means of a winding drum to which the ropes are attached.
11319	**CROSS-OVER DRIVE.** FULL-WRAP DRIVE.	A traction drive comprising a grooved driving sheave and a grooved idler, so arranged that the rope or ropes are led twice over the driving sheave.
11320	**GATE SWITCH.** GATE LOCK.	A switch serving to break the control circuit in case any gate or door is opened while the gear is in motion and serving to prevent the gear from starting until all gates or doors are closed.

No.	TERM.	DEFINITION.
11321	**AUTOMATIC GATE LOCK.** SAFETY LOCK.	A lock applied to the gate of a lift and so constructed that it is released only by the car, and that only when the lift is in a position of safety.
11322	**SLACK ROPE SWITCH.**	A switch in the control circuit and designed to open that circuit if any rope slackens beyond a predetermined limit.
11323	**LIMIT SWITCH.** TERMINAL SWITCH.	A switch fitted in the shaft and operated by the car or counterweight so as to limit the travel.
11324	**CONTROL LIMIT SWITCH.**	A limit switch so constructed as to operate by opening the control circuit.
11325	**MAIN LIMIT SWITCH.**	A limit switch so constructed as to operate by opening the main circuit.
11326	**CAR.** CAGE.	That part of a lift which carries the load and which is protected on at least two sides.
11327	**PLATFORM.**	That part of a lift which carries the load and which is either not protected or is protected on one side only.
11328	**TWO-TO-ONE ROPING.** 2/1 *Roping.* TWO-TO-ONE REEVING, PAR-BUCKLING SNATCH BLOCK.	A method of suspending the car and counter-weight of a lift by passing the rope round a sheave and anchoring to the main structure so as to obtain a 2/1 mechanical advantage.
11329	**TRAILING CABLE.**	A flexible multi-core cable connecting the control circuits in the car with the haulage mechanism.
11330	**GUIDE.** GUIDE RAIL, RAIL, RUNNER.	That part of a lift which is fixed to the main structure for the purpose of guiding the car and/or counterweight.
11331	**SHOE.** RUNNER.	That part of a lift which is fixed to the car or platform and which engages with the guides.
11332	**OVER-SPEED SAFETY GEAR.**	An automatic device which serves to bring a lift to rest in the event of the velocity exceeding a predetermined limit.

No.	TERM.	DEFINITION.
11333	**WEDGE-TYPE SAFETY GEAR.**	A form of safety gear in which the action on the guides is effected by a screw and wedge.
11334	**CLAW-TYPE SAFETY GEAR.** CAM-TYPE SAFETY GEAR.	A form of safety gear in which the action on the guides is effected by means of serrated cams or claws.
11335	**SELF-SUSTAINING GEAR.**	A form of lift gear which, independently of any brake which may be incorporated, will not operate by reason of load in either direction.
11336	**OVER-TYPE WORM GEAR.**	A form of worm gear in which the driving member is situated above the driven member.
11337	**UNDER-TYPE WORM GEAR.**	A form of worm gear in which the driving member is situated below the driven member.

SUB-SECTION 119. VARIOUS.

No.	TERM.	DEFINITION.
11901	**ELECTRO-CULTURE.**	The stimulation of growth, flowering or seeding by electrical means.
11902	**ELECTRO-FARMING.**	The application of electricity to agriculture, whether for electro-culture, the driving of machinery, or for any other purpose.
11903	**ELECTRICAL PRECIPITATION.** ELECTROSTATIC PRECIPITATION.	The precipitation (by means of a unidirectional electric field between electrodes) of solid or liquid particles, which are held in suspension in a gas. One electrode, known as the **ACTIVE** (DISCHARGE) **ELECTRODE** is insulated, and the other, known as the **PASSIVE** (COLLECTING) **ELECTRODE** is earthed. The precipitated particles collect upon the earthed electrode, which is usually the positive.

No.	TERM.	DEFINITION.
11904	**ARO WELDING.**	The welding of metals by means of heat generated by passing a current between the metals and an electrode of carbon or other material.
11905	**SPOT WELDING.**	A form of electric welding in which the metals are welded at a series of isolated spots.
11906	**RESISTANCE WELDING.**	The welding of metals by means of heat generated by passing a current between the two metals or the two portions of metal to be welded.

APPENDIX I.

SYMBOLS FOR QUANTITIES AND UNITS DEFINED IN THE GLOSSARY.

I.—QUANTITIES.

Absorption factor (for luminous flux)	a
Amplification factor (of a thermionic valve)	m
Anode A.C. resistance (of a thermionic valve)	R_a
Brightness	B
Capacitance	C
Conductance	G
Current	I
Efficiency	η
Electrostatic flux density	D
Frequency	f
Hydrogen ion concentration ...	pH
Illumination	E
Impedance	Z
Intensity of magnetisation ...	J
Luminous flux	F
Luminous intensity	I
Magnetic flux	Φ
Magnetic flux density	B
Magnetising force	H
Mutual inductance	M
Permeability	μ
Permittivity	ϵ
Period	T
Phase displacement	ϕ
Potential difference	V
Power	P
Quantity of electricity ...	Q
Reactance	X
Reflection factor (for luminous flux)	ρ
Reluctance	S
Resistance	R
Self-inductance...	L
Susceptibility	κ
Transmission factor (for luminous flux)	τ
Visibility factor	K
Volume resistivity	ρ

II.—UNITS.

Ampere	A
Ampere-hour	Ah
Coulomb	C
Farad	F
Henry	H
Joule	J
Kilo-	k
Kilowatt	kW
Kilowatt-hour	kWh
Kilovolt	kV
Kilovolt-ampere	kVA
Kilovolt-ampere-hour ...	kVAh
Micro-	μ
Microfarad	μF
Milli-	m
Ohm	Ω
Picofarad	$\mu\mu$F
Volt	V
Volt-ampere	VA
Watt	W
Watt-hour	Wh

APPENDIX II.

CONTENTS ARRANGED IN THE ORDER OF THE INTERNATIONAL DECIMAL CLASSIFICATION.

In the column below, headed "No. in Glossary," the numbers given refer to the appropriate term or terms, except in those cases where the numbers consists of 2 or 3 digits only. In such cases the numbers refer to the appropriate Sub-Sections.

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·2	Electrostatics	12, 1213, 1401–1403, 1434–1437
·3	Electro-cinematics	1404–1433, 1439
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54	CHEMISTRY—	
541	Theoretical chemistry—	
·1	Physical chemistry—	
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·310·2	Mechanical parts	19
·310·3	Technological terms	16
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·311·1	Power stations	5401–5404
·311·6	Pillars, distribution pillars ..	5405–5409
·311·7	Switchgear and control gear—	
·311·703	Qualifying terms	35
·311·709	Miscellaneous terms	39
·311·74	Circuit opening and closing devices	31

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·311·751	Startors	32
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621·312	Generators, dynamos, electrical machines	21
·312·02	Parts of machines	25
·312·027	Parts and types of windings	26
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621·313	Motors	22
·313·3	Composite machines	23
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·315·2	Underground construction, cables	5311–5344
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·327	Other lamps	8309–8313
·33	Traction—	
·332	Energy transmission, general track construction—	
·332·2	Track construction	71
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·38	Scientific Apparatus: biological and therapeutical	112
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DECIMAL CLASSIFICATION.		NO. IN GLOSSARY.
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·394·62	Receivers	—
·394·63	Calling apparatus	9401–9405
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·394·65	Switching devices	9601
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·394·72	Offices, exchanges	9101
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